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MEASURING POVERTY AND VULNERABILITY IN MICROFINANCE.

MEMORIA PARA OPTAR AL GRADO DE DOCTOR

PRESENTADA POR

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Bajo la dirección del doctor

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Measuring Poverty and Vulnerability in Microfinance

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Dedicado a la memoria de Doña Cesaria Lago Otero, mi abuela,
y a su historia de cómo guardaron el primer salario después de la guerra en la cocina
... para descubrir a la mañana siguiente que lo habían comido los ratones.

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The usual disclaimer applies: all views (and any errors) expressed in this paper are the author's and do not represent the views of AMK or Concern Worldwide or any of the institutions or individuals that have helped throughout the process of researching and writing this dissertation.

ABSTRACT

This dissertation explores how to best measure poverty and vulnerability to poverty in microfinance clients in rural areas and provides the results of the test for Angkor Mikroheranhvatho (Kampuchea) (AMK), a microfinance institution operating in rural Cambodia.

The objective is to find the best measuring tool available and to adapt it to the rural Cambodian context. Thus, the first section of this dissertation discusses the theoretical framework for rural finance, microfinance, poverty and vulnerability to poverty and the second section explores the Cambodian context and its poverty profile.

In the third section, two complementary but distinct poverty measuring tools are applied: a multidimensional relative poverty tool based on Principal Component Analysis (AMK-PCA Wellbeing Score) and a one-dimensional absolute poverty tool based on Daily Food Expenditure per capita. Both tools are based on food security. The analysis shows AMK's extensive poverty outreach, and the comparison of the outputs from both tools further confirm the reliability of results.

The main conclusion of this dissertation is that it is not possible to create a single poverty assessment tool that provides simultaneously absolute and multidimensional results. What is possible is to apply two tools, as part of a combined research effort within the context of rural Cambodia, so that poverty and vulnerability can be assessed regularly as a multidimensional concept while adding a monetary tool that allows for easier comparisons at the national level.

Key Words: Microfinance, Poverty, Vulnerability, Cambodia.
Key Words (not included in the title): Rural Finance, Cambodia, AMK, Concern Worldwide.

RESUMEN

Esta tesis doctoral explora cómo medir la pobreza y la vulnerabilidad a la pobreza en los clientes rurales de microfinanzas y aplica sus resultados al estudio de caso de Angkor Mikroheranhvatho (Kampuchea) (AMK), una institución microfinanciera que trabaja en las zonas rurales de Camboya.

El objetivo es identificar la mejor metodología para medir el nivel de pobreza de los clientes de microfinanzas y adaptarla a la realidad del contexto rural camboyano. Así, la primera sección de la tesis examina los aspectos teóricos de las finanzas rurales, microfinanzas, pobreza y vulnerabilidad a la pobreza y la segunda sección estudia el contexto camboyano y su perfil de pobreza.

En la tercera sección, se presentan dos metodologías distintas pero complementarias basadas en el concepto de seguridad alimenticia: un índice multidimensional de medición de la pobreza relativa basado en el Análisis de Componentes Principales (el Índice de Bienestar AMK-PCA, por sus siglas en inglés) y un indicador unidimensional de pobreza absoluta basado en el Gasto Alimentario Diario per cápita comparado con el umbral de pobreza alimenticia. El análisis indica que los nuevos clientes de AMK son más pobres que los hogares rurales en general; y la comparación de los resultados de ambas metodologías confirma su fiabilidad.

La conclusión fundamental de esta tesis doctoral es que no es posible crear una única metodología que entienda la pobreza como un fenómeno multidimensional y al mismo tiempo permita su comparabilidad en términos absolutos. No obstante, se pueden utilizar dos metodologías complementarias adaptadas al contexto rural Camboyano -como parte del mismo esfuerzo investigador-, que permiten medir la pobreza como un fenómeno multidimensional y simultáneamente, utilizar otra herramienta adicional que hace asequible las comparaciones en el ámbito nacional por ser exclusivamente monetaria y basada en el consumo alimentario.

Palabras clave (no incluidas en el título): Finanzas Rurales, Camboya, AMK/Concern Worldwide.
Título en Castellano: Medición de la Pobreza y la Vulnerabilidad en Microfinanzas.

RESUMEN AMPLIADO EN CASTELLANO

Esta tesis doctoral explora cómo medir la pobreza y la vulnerabilidad en los clientes rurales de microfinanzas y aplica sus resultados al estudio de caso de Angkor Mikroheranhvatho (Kampuchea) (AMK), una institución microfinanciera que trabaja en las zonas rurales de Camboya.

La investigación se basa en dos premisas fundamentales: que la pobreza es un fenómeno multidimensional y que explorarlo implica necesariamente la incorporación del concepto de *vulnerabilidad a la pobreza,* definido como el riesgo de caer en la pobreza en un futuro, incluso de personas no clasificadas como pobres en ese momento. El concepto de vulnerabilidad a la pobreza (abreviado como vulnerabilidad a lo largo de esta tesis), ha sido incluido por dos razones principales: (i) para poder estudiar la pobreza entendida como un fenómeno dinámico en vez de estático y (ii) porque el concepto de vulnerabilidad es, en sí mismo, una dimensión inherente a la medición del bienestar.

La principal hipótesis de esta tesis doctoral es que si bien no es posible crear un índice universal para la medición de la pobreza que sea útil y aplicable a todos los programas o instituciones de microfinanzas en el mundo, sí es posible crear una metodología que sea relevante para los hogares rurales en Camboya.

Puesto que el objetivo es identificar la mejor metodología para medir el nivel de pobreza en los clientes de microfinanzas y adaptarla a la realidad del contexto rural camboyano, la tesis se ha estructurado en cuatro secciones principales: la primera sección cubre el marco teórico de las finanzas rurales y las microfinanzas así como la bibliografía existente sobre la medición de la pobreza y la vulnerabilidad; la segunda abarca el contexto camboyano; la tercera profundiza en el estudio empírico de AMK; y la cuarta sección formula las conclusiones.

En más detalle, la primera sección sienta las bases del marco teórico con respecto a las microfinanzas y la medición de la pobreza y de la vulnerabilidad a la pobreza. El capítulo I estudia el marco teórico de las finanzas rurales y el capítulo II el de las microfinanzas, detallando las aportaciones más recientes en la disciplina: la sostenibilidad financiera, la

medición del nivel de pobreza de los clientes, el impacto y el desempeño social. El capítulo III explora la pobreza y la vulnerabilidad a la pobreza, así como las metodologías de medición, incluyendo aquellas utilizadas por entidades microfinancieras.

La segunda sección aporta la información básica del contexto camboyano. El capítulo IV es una descripción del contexto histórico y la situación económica y sociopolítica, a la que se suma un análisis detallado del perfil de pobreza del país. El capítulo V estudia el sector financiero y la situación de las finanzas rurales y las microfinanzas. El capítulo VI describe a AMK y la evolución seguida desde que surgió como un programa de la ONG irlandesa Concern Worldwide hasta convertirse en una entidad microfinanciera independiente con licencia de operaciones del Banco Central.

En la tercera sección se expone cómo el análisis de la bibliografía ha desembocado en la utilización de dos metodologías diferentes pero complementarias para la medición de la pobreza. El Capítulo VII cubre todos los detalles de la metodología aplicada al estudio empírico: el tamaño y la selección de la muestra y su representatividad, la encuesta aplicada y la definición, el proceso estadístico y el cálculo de cada una de las metodologías. El capítulo VIII analiza los resultados de las dos metodologías y compara sus resultados.

Finalmente, en la cuarta sección, el capítulo IX establece las conclusiones y las aportaciones fundamentales de esta tesis doctoral, así como sus implicaciones para futuros estudios sobre el tema.

Motivación

Este estudio es fruto del deseo de la autora de documentar los efectos del acceso a las microfinanzas en los clientes, empleando la metodología más rigurosa posible. Originalmente la tesis iba a analizar el impacto de las microfinanzas en la pobreza y la vulnerabilidad. De hecho, una de las metodologías creadas por esta tesis y utilizadas en el estudio empírico servirá para un futuro estudio de impacto: concretamente, el índice multidimensional del bienestar de los hogares se analizará longitudinalmente comparando los resultados de los hogares de clientes y no-clientes. Esa tarea queda pendiente y fuera del alcance de este documento. Entretanto, esta tesis doctoral se concentra en una tarea más

modesta pero igualmente crucial: la medición de la pobreza y de la vulnerabilidad a la pobreza.

Antes de entrar en materia, conviene realizar algunas aclaraciones. Este proyecto comenzó en el año 2002 cuando la autora se puso en contacto con la dirección de Concern Worldwide en Camboya para explorar la posibilidad de usar el precursor de AMK como un estudio de caso para esta tesis doctoral. A su vez, los directivos expresaron su deseo de que los resultados (y los procesos) de una posible tesis pudieran ser útiles para las instituciones involucradas. Finalmente, en el año 2003, la autora fue contratada por Concern Worldwide como parte del equipo directivo de AMK, con el objetivo explícito de establecer en AMK una metodología rigurosa para conocer en profundidad a los clientes y sus necesidades. El acuerdo fue que la autora se concentraría en crear métodos de investigación sólidos y rigurosos que sirvieran, en primer lugar, para el estudio de caso de esta tesis doctoral y, simultáneamente, para la toma de decisiones en la microfinanciera, tanto a nivel estratégico, como en el día a día. (La autora también se hizo cargo de otras responsabilidades no directamente vinculadas con la investigación.) Las tareas de investigación habían de emprenderse al más alto nivel - no solo en un sentido metodológico y de rigor académico sino también en un sentido ético: la investigación tenía como objetivo la creación y análisis de indicadores de pobreza en el ámbito rural camboyano y, al mismo tiempo, debía producir información útil a nivel interno para la propia AMK, y no material publicitario. La autora ha formado parte del equipo de gestión de AMK para garantizar que la microfinanciera mantendrá todos los sistemas creados y que el nuevo personal investigador (capacitado durante este periodo) podrá seguir produciendo información útil para la gestión y para la toma de decisiones. De ahí también que el manuscrito original de esta tesis doctoral esté escrito en inglés: en reciprocidad por la confianza otorgada, era necesario producir un documento que cubriera tanto los resultados como los procesos en un idioma que dominara el personal de Concern Worldwide y de AMK. La autora también cree que el manuscrito en inglés forma parte de un legado ético de transparencia: es justo devolver los resultados de la investigación a las organizaciones que han permitido un acceso sin restricciones a toda la información requerida.

Dicho esto, el estudio analítico presentado en esta tesis doctoral es original y ha sido producido íntegramente por la autora, aunque lógicamente algunas secciones se basen en artículos y documentos de investigación previos. Entre ellos destacan el trabajo de

investigación producido para el Diploma de Estudios Avanzados (DEA) (Torres, 2003), el documento sobre Finanzas Rurales y el Sector de Microfinanzas en Camboya escrito para el Banco Mundial (Torres, 2004), así como otra documentación interna creada para AMK como los informes anuales, el perfil institucional y el estudio empírico de medición del nivel de pobreza de clientes producidos originalmente por la autora para uso interno en AMK durante los años 2006 y 2007.

Resumen de la Tesis

A continuación se resume esta tesis doctoral, siguiendo la misma estructura del documento: marco teórico, contexto camboyano, resultados del estudio empírico y conclusiones. El resumen culmina con la formulación de las conclusiones y las aportaciones fundamentales de esta tesis, así como sus implicaciones para futuras investigaciones.

El marco teórico establece los mecanismos que permiten a las microfinanzas servir a las poblaciones pobres y está dividido en dos secciones fundamentales: la primera se concentra en identificar los principales obstáculos que impiden que los mercados financieros formales se ocupen de los hogares más pobres y la segunda se concentra en analizar cómo las microfinancieras han sido capaces de vencer estos obstáculos.

La primera sección documenta cómo los objetivos del desarrollo y la modernización agrícola se apoyaron en el mecanismo de concesión de créditos subsidiados, bajo la premisa de que el acceso a créditos con tasas de interés inferiores a las del mercado incitaría a los pequeños agricultores a invertir en nuevas tecnologías y cultivos. Durante los años setenta y ochenta, estudios teóricos y empíricos documentaron cómo y por qué este mecanismo del crédito subsidiado no estaba cumpliendo los objectivos para los que se estableció ya que eran precisamente las élites las que más se beneficiaban de la existencia del subsidio. Simultáneamente, surgió un nuevo paradigma en el desarrollo de sistemas financieros rurales basado en el concepto de la eficiencia y como reflejo de un cambio aún más amplio en la conceptualización del desarrollo: el desarrollo entendido más allá del ámbito agrícola para abarcar el ámbito rural más general. Esta nueva conceptualización del desarrollo rural incluía tanto actividades agrarias como no-agrarias e incorporaba el concepto de la movilización de los ahorros por instituciones financieras rurales.

Los obstáculos principales que impiden que los mercados financieros formales se ocupen de los hogares más pobres se explican dentro del marco teórico por la imperfección de los mercados financieros, particularmente por los problemas de asimetrías de información entre prestamistas y prestatarios y por el riesgo moral o riesgo inducido. Los individuos que solicitan un préstamo tienen distintas probabilidades de impago y establecer estas probabilidades supone un coste al prestamista. Estos costes se refieren tanto a la determinación del nivel de riesgo en el momento de la solicitud (el problema de "screening" o criba de clientes) como al fomento de incentivos para que los prestatarios tomen aquellas decisiones que maximicen su probabilidad de pago, una vez que el contrato de crédito ha sido formalizado (el problema de riesgo moral). Por último, para aquellos individuos con capacidad de pago, el acreedor ha de enfrentarse a la dificultad y costo de hacer cumplir el contrato de préstamo pactado y por tanto garantizar el pago.

Los mecanismos comúnmente utilizados por los prestamistas para vencer estos problemas o riesgos pueden ser directos o indirectos. Los mecanismos directos son aquéllos en los que el prestamista invierte recursos en seleccionar únicamente a aquellos solicitantes con mayor probabilidad de repago. Por otro lado, los mecanismos indirectos incluyen la creación y diseño de contratos de crédito en los que las respuestas de los prestatarios (basadas en su propio interés y beneficio) permiten al prestamista clasificar el riesgo de cada solicitante, y simultáneamente, induce a este solicitante a pagar y/o reducir sus probabilidades de impago. Los mecanismos indirectos más utilizados en los mercados financieros rurales incluyen: la tasa de interés; el incremento del valor del préstamo en base al historial crediticio (o historial de pago con la misma entidad prestamista/acreedora); planes de pago regulares que excluyen a los prestamistas menos disciplinados; el ahorro obligatorio o la garantía de bienes con valor sentimental para el prestatario como substitutos a las garantías físicas tradicionales; la amenaza de sanciones sociales de otros miembros de la comunidad; o los préstamos en los que el prestamista tiene derecho total a la producción de la tierra del prestatario hasta que el capital prestado sea reembolsado en su totalidad.

La teoría de contratos idenfica los mecanismos necesarios para establecer un contrato de crédito satisfactorio tanto para el prestamista como para el prestatario. Particularmente, la base teórica argumenta que las microfinancieras definen un contrato de crédito que consigue incluir a los pobres porque excluye a los ricos. Los hogares más ricos pueden ser excluidos directamente mediante requisitos de participación que les excluyan (por ejemplo, poseer una

cantidad inferior a cierto número de hectáreas cultivables), o bien indirectamente, si la microfinanciera cobra tipos de interés de mercado; si proporciona préstamos tan pequeños que sólo los pobres los deseen; o si fija requisitos que inviten a las élites a auto-excluirse (por ejemplo tener que asistir a reuniones semanales para conseguir un préstamo). Frecuentemente, estos requisitos directos o indirectos de participación se combinan para maximizar las probabilidades de reembolso, así como el cumplimento de los objetivos de la entidad microfinanciera. La teoría está apoyada por estudios empíricos que demuestran que los clientes de microfinanzas se concentran alrededor del umbral de la pobreza.

La segunda parte del marco teórico se concentra en definir las microfinanzas y en exponer sus características principales, cubriendo las estructuras institucionales y metodológicas más comúnmente utilizadas: formales o informales; minimalistas o integradas; enfocadas al crédito individual o solidario; enfocadas al ahorro obligatorio o voluntario. A su vez, el crédito solidario puede sub-dividirse de acuerdo a la metodología aplicada, siendo las más conocidas el método Grameen, el metódo solidario utilizado por ACCION, el de banca comunal utilizado por FINCA o el de las asociaciones de ahorro y crédito (o bancos comunales) independientes. Este abanico de alternativas de estructura y de metodologías pretende resaltar la riqueza de opciones al alcance de las instituciones microfinancieras así como constatar que ninguna metodología o estructura institucional específica es mejor o peor *a priori* que cualquier otra de las alternativas existentes o sus combinaciones. Las microfinancieras no son entidades homogéneas precisamente porque su éxito depende de su capacidad de adaptarse al entorno en el que operan.

Las aportaciones más recientes en la disciplina de las microfinanzas incluyen los conceptos de sostenibilidad financiera, el servicio a los hogares pobres (incluyendo la medición de su nivel de pobreza), el impacto y el desempeño social.

La sostenibilidad o viabilidad financiera se refiere a la capacidad de una entidad microfinanciera de cubrir todos sus costes con los ingresos generados por su actividad.

El servicio a los hogares pobres (o alcance a los pobres) se refiere a la oferta de servicios a poblaciones previamente excluidas por servicios financieros formales y cubre dos conceptos complementarios: el número total de clientes u hogares así como la pobreza de cada uno de éstos. Esta diferenciación entre el número total de clientes y el predominio de clientes pobres

en el mercado total merece ser recalcada: dado un número común X de clientes clasificados como pobres, éstos pueden acceder al mismo servicio financiero provisto por la entidad A si ésta se dedica exclusivamente a este segmento de la población o por la entidad B si ésta incluye el servicio al subgrupo de estos clientes pobres, aunque éstos sean solo una pequeña porción del mercado total de clientes de la entidad B.

El impacto se refiere a los beneficios recibidos por los pobres como consecuencia del acceso a los servicios financieros e incluye aspectos sociales así como financieros. La medición de impacto es muy compleja debido a la problemática de atribuir causalidad, es decir, de atribuir cambios en el bienestar de los hogares exclusivamente al acceso a servicios financieros.

Finalmente, el término de desempeño social es una de las últimas adiciones a la disciplina de las microfinanzas, y se define como "la traducción efectiva de la misión institucional en la práctica." El desempeño social pretende medir el éxito de una entidad en función a valores sociales comúnmente aceptados en el ámbito de las microfinanzas incluyendo: servir a poblaciones pobres y excluidas; mejorar la calidad de los servicios financieros; mejorar la calidad de vida de los clientes y crear beneficios para sus familias, así como mejorar la responsibilidad social de la entidad microfinanciera.

La distinción inequívoca entre los conceptos de desempeño social, el servicio o alcance a los hogares pobres y el concepto de impacto será necesaria para delimitar las conclusiones de esta tesis doctoral. Si bien el alcance a los pobres es sólo una de las dimensiones del desempeño social, esta tesis doctoral pretende dar respuesta precisamente al interrogante de cómo medir la pobreza y la vulnerabilidad a la pobreza entre la totalidad de los clientes de una entidad microfinanciera, proponiendo metodologías de medición de la pobreza coherentes con el entorno en el que operen.

El repaso de la bibliografía sobre las metodologías de medición de la pobreza y de la vulnerabilidad se divide entre metodologías unidimensionales (monetarias y no monetarias) y metodologías multidimensionales (tanto las participativas como las que están basadas en indicadores), e incluye ejemplos de metodologías e indicadores utilizados por entidades microfinancieras. La complejidad en su medición radica precisamente en la falta de acuerdo universal sobre *cuál es la definición* de la pobreza y, como se indicó anteriormente, incluye el concepto de vulnerabilidad definido como el riesgo de caer en la pobreza en un futuro. Entre

las medidas unidimensionales, la medida monetaria de la pobreza más conocida es el umbral de la pobreza basado en encuestas de hogares como el Living Standard Measurement Survey (LSMS). Otras medidas unidimensionales no monetarias comúnmente utilizadas incluyen el consumo nutricional, los niveles educativos, la esperanza de vida, la mortalidad infantil o el acceso a servicios públicos tales como los centros de salud o el agua potable. Por otro lado, las medidas multidimensionales más conocidas son el Índice de Desarrollo Humano o los métodos participativos de medición de la pobreza. En el caso de la experiencia específica de las microfinancieras, tres de los ejemplos se basan en indicadores unidimensionales: el instrumento de medición basado en ingresos de ACCION, la sección de gastos de la herramienta de FINCA-FCAT y los Índices de Estado de la Vivienda. Los otros cuatro ejemplos son metodologías multidimensionales: el índice de pobreza de CGAP/Grameen/Ford; los indicadores basados en modelos participativos; las medidas del patrimonio neto o listas de verificación; y el indicador de medición de la pobreza de CGAP/IFPRI.

El objetivo es identificar una metodología de medición de la pobreza, entendida como un fenómeno multidimensional, que permita comparaciones no sólo entre distintas zonas operativas de una microfinanciera, sino también con otras microfinancieras que operen en otros países. Como puede comprobarse en el cuadro en la siguiente página, ninguna de las metodologías analizadas cumple ambos requisitos.

Las metodologías unidimensionales de carácter monetario son comparables pero no consiguen captar una imagen completa de la pobreza; las metodologías unidimensionales de carácter no monetario tienen el mismo punto débil y además son menos susceptibles a las comparaciones.

Las metodologías multidimensionales basadas en modelos de medición participativos tienen la ventaja de cubrir varias dimensiones de la pobreza, permitiendo a los propios participantes priorizar y establecer los pesos relativos de estas dimensiones. Sin embargo, las metodologías participativas no son recomendables para las entidades microfinancieras porque no permiten una comparación siquiera entre diferentes áreas operativas: un pobre en el pueblo A no necesariamente se clasificaría como pobre en el pueblo B y viceversa.

Metodologías de Medición de Niveles de Pobreza en Clientes de Microfinanzas
(Aspectos Positivos y Negativos)

	Unidimensional	Multidimensional
Medidas Absolutas	**Instrumento Medición Ingresos de ACCION [ACCION Income Tool]** ✓ Medida absoluta → comparable ☒ Unidimensional ☒ Basado en ingresos (en vez de consumo) ☒ Fiabilidad de los datos cuestionable (datos parte del proceso de solicitud del préstamo) ☒ No incluye ni monetizada la producción utilizada en auto-consumo **Sección de gastos de la herramienta de FINCA [DPCE section of FINCA-FCAT tool]** ✓ Medida absoluta → comparable ✓ Basado en consumo ☒ Auto-consumo no incluido ni monetizado	**Índice de Pobreza CGAP/Grameen/Ford [Progress Out of Poverty Index (PPI)]** ✓ Medida multidimensional de la pobreza ✓ Medida absoluta → comparable ☒ Demasiado reciente para una evaluación completa ☒ La tarjeta de scoring estadístico no está disponible para Camboya y no es posible que una microfinanciera la cree (los estudios nacionales no están disponibles para uso público y no hay información específica del coste de la creación de la tarjeta) ☒ Posibles problemas con la actualización del índice
Medidas Relativas	**Índices de Estado de la Vivienda [Housing Indexes]** ✓ Fáciles y rápidos ☒ Unidimensional ☒ Medida relativa → no fácilmente comparable (es unidimensional pero no-monetaria) ☒ No es transferible a otros contextos geográficos (no es relevante en términos generales)	**Indicadores basados en Modelos Participativos [Participatory Wealth Ranking]** ✓ Medida multidimensional de la pobreza ✓ Participantes definen la pobreza ☒ Ránking subjetivo → difícil verificación ☒ Medida relativa → no fácilmente comparable (*ni siquiera para comparar dos poblaciones diferentes dentro del mismo país)* ☒ Posiblemente inadecuada para país post-conflicto ☒ Requiere expertos en su implementación (difícil encontrar personal con experiencia en las microfinancieras, particularmente las minimalistas) **Medidas del Patrimonio Neto / Listas de Verificación [Net Worth / Check Lists]** ✓ Medida multidimensional de la pobreza ☒ Indicadores y sus correspondientes pesos relativos, son asignados arbitrariamente ☒ Medida relativa → no comparable **Indicador de Medición de la Pobreza de CGAP/IFPRI [Poverty Assessment Tool]** ✓ Medida multidimensional ✓ Metodología rigurosa ☒ Medida relativa → no comparable

Análisis producido por la autora

Las metodologías multidimensionales basadas en indicadores tampoco son comparables en valores absolutos pero al menos pueden compararse nacionalmente los resultados de las distintas áreas operativas. En cualquier caso, se ha dado preferencia a las metodologías más rigurosas en la determinación del peso relativo de cada dimensión de la pobreza, sobre las metodologías que asignan pesos de forma arbitraria. Del mismo modo, se ha dado

preferencia a aquellas metodologías que han sido probadas en otros contextos geográficos y que ya pueden proporcionar algunos resultados de su aplicabilidad.

Como consecuencia, esta tesis ha basado sus métodos de médición en el indicador de medición de la pobreza multidimensional de CGAP/IFPRI y en la sección de gastos de la herramienta de medición del consumo de FINCA-FCAT, con los correspondientes cambios para adaptarlos al contexto rural camboyano que serán descritos en detalle en la tercera sección del estudio empírico.

La sección que cubre el contexto camboyano establece que la pobreza en Camboya es un fenómeno rural: más del 84 por ciento de la población es rural y más del 90 por ciento de los pobres vive en las zonas rurales.

Otro punto relevante de esta segunda sección es que las microfinanzas no son una panacea y no crean -por sí mismas- oportunidades económicas, pero el acceso a microcréditos permite a los individuos sacar un mayor provecho de las oportunidades económicas existentes. En este sentido, la poca información fidedigna que existe sobre flujos de caja, actividades económicas, y fuentes y usos de crédito en los hogares rurales de Camboya, sugiere que éstos ya tienen deudas pendientes (aunque no necesariamente con el sector formal) y que probablemente requieren otros productos financieros además de los productos de préstamo. Sin embargo, es mas preciso referirse al sector micro*financiero* camboyano como un sector de micro*crédito*, dada la falta de productos de ahorro y de seguro. Los principales operadores microfinancieros que trabajan en las zonas rurales en la actualidad son un único banco comercial (ACLEDA), microfinancieras con licencia oficial del Banco Central, otros operadores autorizados, y el sector financiero informal. Los nueve operadores principales son ACLEDA (incluyendo sólo su cartera de préstamos para micro y pequeños empresarios) y ocho microfinancieras con licencia del Banco Central: PRASAC, AMRET, CEB, TPC, VisionFund, Hattha Kaksekar, AMK y CREDIT. Estos nueve operadores captan conjuntamente el 93 por ciento de la cartera total y sirven al 94 por ciento de los clientes de préstamo. ACLEDA es el líder de mercado en cuanto a la cartera de préstamos y depósitos; sin embargo, en lo referente al número de clientes, AMRET está lentamente superando la hegemonía de ACLEDA.

El análisis de la evolución de las microfinanzas en Camboya desde el año 2000 al 2006 concluye que los micro y pequeños empresarios se han beneficiado más que los hogares rurales del aumento del volumen de préstamos (tanto provenientes de los operadores existentes como de los recién llegados al mercado) y que el sector se está dividiendo en dos grupos: las microfinancieras que se centran en préstamos con saldos pequeños y las microfinancieras que ofrecen una combinación de productos orientados fundamentalmente a microempresas y/o Pequeñas y Medianas Empresas (PYMES).

El último capítulo de esta segunda sección está dedicado a AMK y documenta el éxito de la transformación desde un programa de una ONG internacional (Concern Worldwide) a una institución microfinanciera camboyana independiente. Las condiciones de los productos, la metodología aplicada y la cobertura geográfica indican que AMK se ocupa de poblaciones pobres y rurales. En términos comparados, AMK ha mantenido el promedio de préstamo más bajo del mercado y es el operador de microfinanzas que presenta un crecimiento más rápido, pasando del 5 por ciento en el 2000 al 11 por ciento en el 2006. Actualmente AMK es la cuarta institución de microfinanzas en el ránking del país respecto al número de clientes de préstamo que sirve y sigue creciendo a la tasa más elevada (promedio de 34 por ciento anual). El análisis de la información existente permite establecer que AMK es una entidad orientada hacia la sostenibilidad financiera. No obstante, el éxito completo de una microfinanciera requiere un equilibrio entre el rendimiento financiero y el social, y esta información tan sólo puede ser confirmada por el estudio empírico que constituye la tercera sección de esta tesis. Como premisas básicas, las estructuras institucionales establecidas en AMK parecen orientarse a establecer este equilibrio entre el desempeño social y el financiero, con la existencia de un departamento de investigación interno y un Comité de Desempeño Social que depende directamente de la Junta Directiva. Igualmente, los datos sobre los perfiles de los hogares de los clientes y los pueblos en los que viven también parecen corroborar esta imagen de AMK como una organización centrada en áreas y clientes pobres.

A continuación, el estudio empírico resume los aspectos metodológicos más destacados y establece que las características de los hogares de los clientes de AMK (y sus pueblos) son bastante similares a las de los hogares de la población rural en general descritos por otros estudios, aunque los hogares de los clientes parecen ser relativamente más pobres.

Dada la falta de un candidato único y claro entre las metodologías estudiadas en el marco teórico, se han utilizado dos metodologías diferentes pero complementarias: un índice multidimensional de medición de la pobreza relativa basado en el Análisis de Componentes Principales (Índice de Bienestar AMK-PCA) y un indicador unidimensional de pobreza absoluta basado en el Gasto Alimentario Diario per cápita comparado con el umbral de pobreza alimenticia.

Ambos métodos son el resultado de un esfuerzo simultáneo de investigación e incluyen las modificaciones necesarias para garantizar su relevancia en el contexto camboyano rural. De hecho, uno de los objetivos de esta tesis ha sido la incorporación de las conclusiones principales del marco teórico de pobreza y vulnerabilidad, así como del perfil de pobreza de las zonas rurales de Camboya, al diseño concreto de la encuesta, a los indicadores elegidos para medir la pobreza y también de forma específica al análisis de resultados. Aunque sería excesivo desgranar todos los detalles, las siguientes líneas proporcionan algunos ejemplos de cómo se ha concretado está incorporación:

- Respecto al diseño de la encuesta, se ha creado un módulo específico para monetizar el valor de la producción que se consume dentro de los hogares. Este módulo es consecuencia directa del perfil de pobreza camboyana, que es fundamentalmente rural, y exhibe particularidades propias de los hogares rurales. Por ejemplo, la estimación del consumo de arroz es anual en lugar de semanal o mensual, debido a que el arroz es el alimento básico de la dieta camboyana y su producción es tan generalizada en las zonas rurales que si la producción propia no es suficiente para cubrir las necesidades de la familia, los hogares calculan su consumo por el número de meses en los que compran arroz en sacos.

- Respecto a los indicadores elegidos para medir la pobreza, ambos se basan directa o indirectamente en el concepto de la seguridad alimenticia, que en el caso de Camboya está intrínsecamente ligado al concepto de vulnerabilidad. La conexión entre la seguridad alimenticia y el Gasto Alimentario Diario per cápita está clara pero también hay una conexión indirecta con el Índice de Bienestar AMK-PCA. En la metodología estadística utilizada para definir el Índice se barajaron dos posibles variables de referencia: el Gasto en Ropa y Calzado y el Gasto Alimentario. Aunque el primero ya había producido buenos resultados en otros contextos geográficos, en este caso la

autora decidió basar el modelo estadístico en la variable de seguridad alimenticia, precisamente porque el concepto era compatible con el perfil de vulnerabilidad de los hogares rurales en Camboya y porque su uso permitía la inclusión de otras dos dimensiones clave de la vulnerabilidad a la pobreza (educación y salud). Asímismo, hay otras variables incluidas en el Índice de Bienestar AMK-PCA que cubren el concepto de vulnerabilidad definido por estudios cualitativos y cuantitativos.

- Respecto a la inclusión en el análisis de resultados, el ejemplo más claro es el uso simultáneo de análisis en terciles y cuartiles. Ambos se utilizan conjuntamente precisamente porque los hogares rurales que participaron en estudios con metodologías cualitativas participativas se auto-seleccionan con la misma frecuencia en tres categorías del bienestar (pobre, media, rica) como en cuatro categorías (paupérrima, pobre, media y rica). El último ejemplo de cómo los resultados del análisis bibliográfico se han incorporado a este estudio es el uso la palabra "bienestar" en vez de la palabra "pobreza" al poner nombre al indicador del Índice de AMK-PCA. Nombrarlo "Índice de Bienestar" en lugar de "Índice de Pobreza," es un intento consciente de centrarse en lo que los hogares rurales *poseen* y no en lo que les falta, y se inspira en el trabajo de Moser sobre la vulnerabilidad y la gestión de activos.

La medición del nivel de pobreza en los clientes de microfinanzas ha de ceñirse al análisis de nuevos clientes en vez de utilizar los datos de todos los clientes. La razón es que el nivel de pobreza actual de un cliente no debería ser el mismo que su nivel de pobreza en el momento de solicitar el primer préstamo, entre otras razones porque el acceso a los servicios microfinancieros debería haber contribuido a mejorar su situación. En consecuencia, el grupo total de hogares de clientes se ha subdividido en tres categorías: clientes nuevos, principiantes y clientes fieles. Los clientes nuevos son aquellos que solicitaron su primer préstamo hace un año o menos; los principiantes son aquellos que han sido clientes durante al menos un año pero menos de dos y los clientes fieles son aquellos que solicitaron su primer préstamo hace dos años o más.

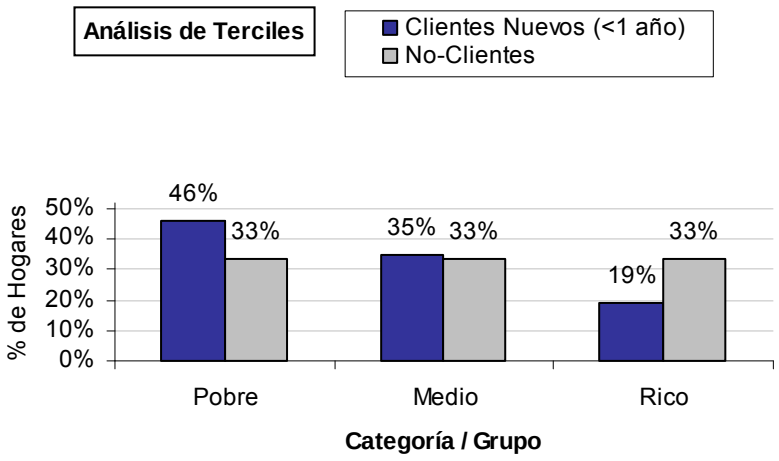
El Índice de Bienestar AMK-PCA asigna a cada hogar rural una puntuación (cuanto más pequeña la cifra, más pobre es el hogar) pero sólo mide la pobreza en términos relativos y por lo tanto, sólo puede medir en qué medida un hogar está en peor situación o en mejor situación que otros hogares entrevistados. Tres tipos de análisis se han llevado a cabo para establecer

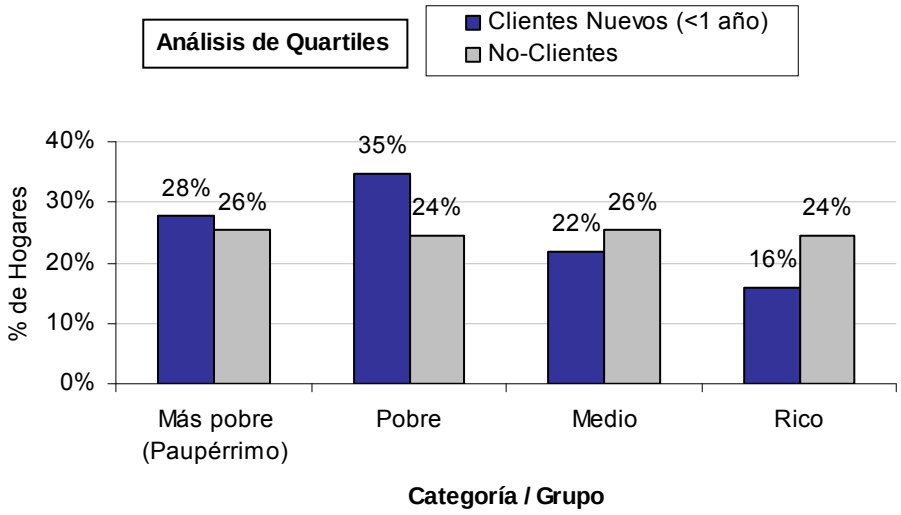
las conclusiones concernientes al Índice de Bienestar AMK-PCA: las frecuencias acumulativas del Índice para clientes y no-clientes, el Índice promedio para clientes y no-clientes, y el análisis de terciles y cuartiles.

Tanto el análisis de frecuencias acumulativas como el promedio del Índice muestran que los hogares de clientes tienden a ser más pobres que los hogares de no-clientes. No obstante, el análisis más interesante para comparar la pobreza relativa de los clientes nuevos y el grupo de control de no-clientes lo proporciona el análisis de terciles y cuartiles.

Una vez establecida la puntuación del Índice de Bienestar AMK-PCA asignada a cada hogar entrevistado, el análisis de terciles divide a la población de hogares de control (los no-clientes) en tres grupos iguales: pobres, medios y ricos, con 30 hogares en cada uno de estos grupos. A continuación, se utilizan las dos cifras concretas del Índice del primer y último hogar de no-clientes en la categoría media para asignar los hogares de clientes en los mismos tres grupos. Si la población general (representada por el grupo de control de no-clientes) y el grupo de clientes son similares en cuanto a su nivel de pobreza, la distribución proporcional de clientes y no-clientes también será similar, con un 33% de clientes en cada una de las tres categorías de pobreza: pobres, medios y ricos. En caso contrario, cualquier variación en esta distribución relativa del grupo de hogares de clientes permitirá establecer las diferencias relativas en el nivel de pobreza. El análisis en cuartiles sigue la misma lógica pero define cuatro categorías de pobreza: los más pobres, pobres, medios y ricos.

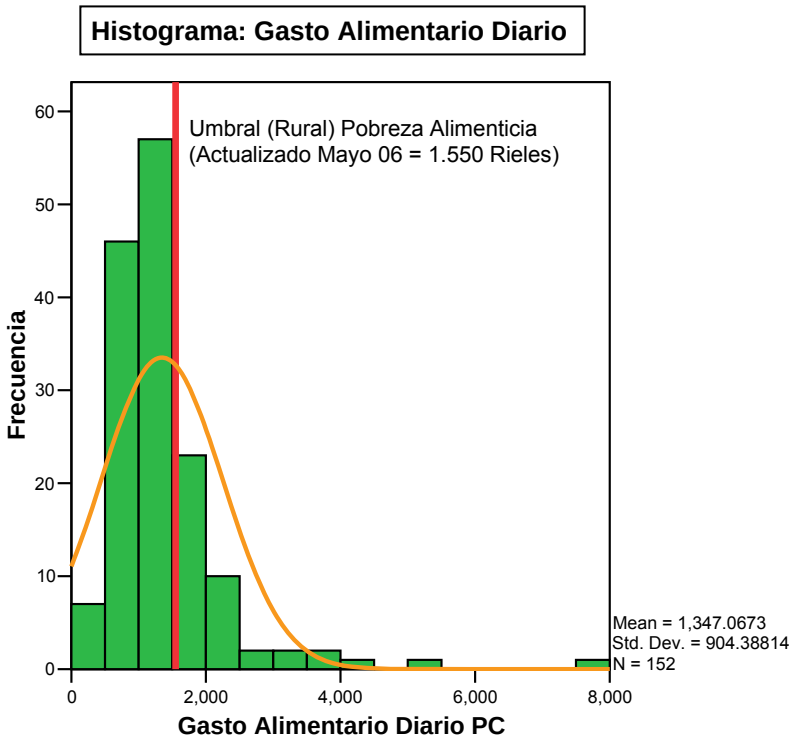
Los resultados se presentan en los siguientes dos gráficos.





La conclusión principal del análisis de terciles sobre el Índice de Bienestar AMK-PCA es que los hogares de clientes nuevos son más pobres que los hogares rurales en general: los clientes nuevos están sobre-representados en el tercil de la categoría de los pobres y sub-representados en el tercil de la categoría de los más ricos. Es decir, comparados con el grupo de control y proporcionalmente, entre los clientes de AMK hay más hogares pobres y menos hogares ricos. Se obtiene la misma conclusión cuando el análisis se basa en cuatro grupos, con los clientes nuevos sobre-representados en la categoría de los pobres y en niveles similares en la categoría de los más pobres.

Finalmente, se compara la cifra de Gasto Alimentario Diario per cápita con la cifra que define el umbral de pobreza alimenticio en las zonas rurales de Camboya (1.550 Rieles) y se concluye que los nuevos clientes de AMK son más pobres que el nivel de pobreza encontrado en la población rural general. Las conclusiones del análisis se pueden observar gráficamente a través de histogramas (ver gráfico) o comparando porcentajes: el 75 por ciento de los nuevos clientes de AMK gastaron en alimentación menos que la cantidad necesaria para situarse por encima del umbral de pobreza alimenticia en las zonas rural de Camboya, mientras que sólo el 57 por ciento de los hogares de no-clientes gastaron menos de lo necesario para cubrir sus necesidades alimentarias.



La conclusión del estudio empírico es que proporcionalmente hay más pobres entre los clientes de AMK que en la población general de las zonas rurales; esta conclusión es válida tanto cuando se utilizan metodologías de medición de la pobreza unidimensionales (monetarias) como multidimensionales y tanto cuando se utilizan metodologías de medición absolutas como relativas.

La comparación de las dos metodologías confirma su fiabilidad: el grupo de hogares de clientes clasificados como pobres (y más pobres) tiende a tener cifras de Gasto Alimentario por debajo del umbral de pobreza alimenticia. Al mismo tiempo, los hogares de clientes con Gastos Alimentarios Diarios por debajo del umbral de pobreza alimenticia tienden a ser clasificados en la categoría de hogares pobres u hogares más pobres de acuerdo con el Índice de Bienestar AMK-PCA

Conclusiones y Aportaciones Fundamentales de la Tesis

La conclusión principal de esta tesis doctoral es que la pobreza y la vulnerabilidad a la pobreza pueden evaluarse en los clientes de microfinanzas rurales utilizando dos metodologías de medición diferentes pero complementarias: el Índice de Bienestar AMK-PCA que incorpora de forma estadísticamente rigurosa el concepto de multidimensionalidad de la pobreza y, simultáneamente, un indicador monetario simplificado que se concentra exclusivamente en el consumo de alimentos.

Por último, cabe resaltar que los dos indicadores han incorporado, en distintas formas, la dimensión de seguridad alimenticia: el Índice de Bienestar AMK-PCA lo ha utilizado como variable de referencia y el indicador basado en el consumo alimentario ha monetizado el valor de la producción que se consume dentro de los hogares. De todas las metodologías utilizadas para medir el nivel de pobreza de los clientes de microfinanzas, la autora no tiene conocimiento de ningún otro estudio que haya aplicado el concepto de seguridad alimenticia como variable de referencia en las distintas fases estadísticas requeridas por el Análisis de Componentes Principales, ni ningún otro estudio que monetice los alimentos producidos y consumidos dentro de los hogares en el cálculo del Gasto Alimentario Diario per cápita; ambos aspectos se sitúan entre las aportaciones fundamentales al área de conocimiento de esta tesis. Otras aportaciones relevantes de esta tesis incluyen el análisis del sector microfinanciero camboyano y la síntesis del nuevo concepto de desempeño social.

Las conclusiones de esta tesis tienen otras implicaciones más generales. Meyer y Zeller (2002) en su análisis del "triángulo de las microfinanzas" alegan que la falta de metodologías rigurosas para medir el nivel de pobreza de los clientes de microfinanzas ha limitado el conocimiento de los efectos de la disfunción entre la sostenibilidad financiera, el nivel de pobreza de los clientes y el concepto de impacto. Armendáriz de Aghion y Morduch (2005) argumentan que aún si existiera una metodología "perfecta" que permitiera probar un impacto neto positivo, éste no se traduciría instantáneamente en un éxito para la institución, porque el éxito de una microfinanciera ha de ser juzgado midiendo tanto los costes como los beneficios y requiere la inclusión del concepto de rentabilidad, así como la evaluación de otras alternativas para dar acceso a servicios microfinancieros. Sharma y Buchenrieder (2002) señalan que el mayor reto es reducir los costes en la prestación de servicios financieros a la población pobre y que - independientemente del impacto alcanzado -, cualquier mejora en el

beneficio por dólar invertido dependerá de las innovaciones creadas por la microfinanciera para reducir estos costes. Sólo aquellas microfinancieras (y sus accionistas) que cuenten con metodologías rigurosas podrán evaluar si están alcanzando los objetivos trazados respecto al desempeño financiero *así como* al desempeño social. Y sólo esas instituciones podrán evaluar adecuadamente si las innovaciones de reducción de costes previstas en las estrategias a largo plazo están dando los frutos previstos y se crean sinergias en vez de disfunción entre el desempeño financiero y el desempeño social.

Esta tesis doctoral ha podido demostrar que en el caso de AMK, no hay disfunción o descoordinación entre el desempeño financiero y el desempeño social sino más bien una sinergia entre ambos. En AMK se ha alcanzado simultáneamente la sostenibilidad financiera, el incremento en el número de clientes, y el predominio de clientes pobres. Así lo señala la comparación de los principales indicadores operativos desde el año 2003 al año 2006, que permite evaluar su desempeño financiero, así como su estrategia de crecimiento en número de clientes y expansión geográfica. Por su parte, la comparación de los resultados de las dos metodologías propuestas permite evaluar su desempeño en lo relativo al nivel de pobreza de los clientes que sirve. Los datos y resultados hasta el momento no indican ningún tipo de disfunción entre ambos tipos de desempeño, sino que –muy al contrario – indican la existencia de sinergias claras. AMK (2007b), Chetan (2007) y Torres et al. (2007) proporcionan información adicional y corroboran este concepto de sinergias y equilibrio entre el desempeño social y el desempeño financiero en AMK.

La autora confía en que esta tesis doctoral pueda contribuir a mejorar el conocimiento cuantitativo respecto a las sinergias entre el nivel de pobreza de los clientes y la sostenibilidad financiera y en que el trabajo del equipo de gestión de AMK (y del departamento de investigación) continúe suministrando información para evaluar las sinergias entre el impacto, el nivel de pobreza de los clientes y la sostenibilidad financiera.

INTRODUCTION

This dissertation explores how to best measure poverty and vulnerability in microfinance clients and provides the results of the test for Angkor Mikroheranhvatho (Kampuchea) (AMK) – a microfinance institution operating in rural Cambodia.

The research is based on two main premises: that poverty is a multidimensional phenomenon and that examining poverty necessarily implies incorporating the concept of vulnerability (to poverty). Vulnerability is understood as the risk of falling into poverty in the future (even if the person is not necessarily poor now) and is used as a shorthand for "vulnerability to poverty" throughout this dissertation. The concept has been included because of two main reasons: (i) in order to study poverty as a dynamic phenomenon, instead of as a static one, and (ii) because vulnerability is, in itself, an inherently important dimension of wellbeing.

The main underlying hypothesis of this dissertation is that while it may not be possible to create a universal poverty measure applicable to (and useful for) all microfinance programs or institutions in the world, it is possible to create a system that is relevant for households in rural Cambodia.

With this objective in mind, this paper is structured in four main sections: the first section provides an overview of how microfinance reaches the poor and how to measure the poverty levels of these clients; the second section discusses the Cambodian context; the third section tests the best tools selected in the case of AMK and the fourth section provides the main conclusions.

After discussing the theoretical framework of rural finance and providing an overview of microfinance (approaches, methodologies and its most recent changes), the first section reviews the theoretical framework of poverty and vulnerability to poverty. In order to find the best tool for measuring poverty, this dissertation first reviews the literature on poverty and vulnerability and provides examples of tools adapted by and for microfinance institutions. Secondly, it reviews thoroughly the Cambodian context and its poverty profile, where poverty is markedly a rural phenomenon. Both qualitative and quantitative studies on Cambodian rural households and poverty profiles are discussed. This is because the objective

is to find the best measuring tool available but also to adapt it to the reality where microfinance operates: the rural Cambodian context.

As a direct consequence of the literature review, two complementary but distinct poverty measuring tools have been applied: a multidimensional but relative wellbeing score and a one-dimensional but absolute benchmark with the food poverty line. The multidimensional relative poverty tool is based on Principal Component Analysis (AMK-PCA Wellbeing Score) and the absolute one-dimensional poverty tool is based on Daily Food Expenditure per capita.

In the empirical case study, the survey tool is tested on AMK in order to construct both measuring tools. Careful consideration is put into including the main highlights of the literature review on poverty and vulnerability as well as the findings of the poverty profile of rural Cambodia into the design of both the survey and measuring tools as well as into the actual analysis of the data. The tools were tested in a survey of 360 AMK client households and a control group of 90 nonclients.

The main conclusion of empirical case study is that AMK is, indeed, reaching poor clients: AMK clients are poorer than those generally found in the population of rural Cambodia. The conclusions of the AMK-PCA Wellbeing Score are based on the results of three main analytical tools: the cumulative frequencies of the score for clients and nonclients, the average wellbeing score by client status and the results of the seniority and the tercile and quartile analysis. The conclusions from benchmarking the Daily Food Expenditure per capita with the Food Poverty Line in rural areas are explored both through histograms and through percentile analysis. The analysis also confirms that the results of both measuring tools are comparable and thus, the tools proposed are complementary.

Motivation

The motivation of this study has been the desire of the author to document the effects of access to microfinance on clients, employing the most solid methodology applicable. The original intention was to write this dissertation about the impact of microfinance on poverty

and vulnerability. In fact, one of the empirical measuring tools discussed in this paper becomes the basis for a future impact assessment - specifically, the multidimensional household wellbeing score defined in this dissertation will be analyzed longitudinally over time to establish conclusions about its evolution, dividing the results by client and nonclient households. That remains as future work and is beyond the scope of this dissertation.

However and in the meantime, this dissertation concentrates on the more humble but equally crucial aspect of measuring poverty and vulnerability to poverty.

Some kind of disclaimer may also be necessary. This research started in 2002. At that time, the author approached Concern Worldwide in Cambodia in order to explore the possibility of using the precursor of AMK as a case study for this dissertation. In turn, Concern Worldwide in Cambodia wanted to make sure that the results (and the processes) of any potential dissertation was to be useful for the microfinance institution itself. In 2003, the author was hired by Concern Worldwide to become one of the managers of AMK, with the explicit aim of making sure that AMK became a "learning organization," where robust systems would be set in place to better understand clients and their needs.

The agreement was that the author was to concentrate on creating research systems that could be directly useful for the strategic and day-to-day decision-making of the microfinance institution (including market research along with other responsibilities not directly linked to research) and that research was to be undertaken at the highest levels - not only in a methodological sense but also ethically: research was meant to improve learning within AMK, not to provide rosy pictures for external audiences. At the same time, research was meant to be as robust and sound as social science research can claim to be. Inherent to the fact that the author is part of the management team within the microfinance institution was that the systems set in place and the capacity built over time were meant to stay in AMK and continue producing information useful for the management and for decision-making. This is also the main reason why the original manuscript of this dissertation has been written in English - the author believes that the trust of the management and staff of both Concern Worldwide and AMK had to be reciprocated with transparent reporting on both the processes and the results. The author also believes that transparency is part of the ethical legacy meant for the research department and that it is only fair to give back these results to the organizations that allowed unrestricted access to information and to resources.

That said, resources were only used from AMK or Concern when directly relevant for the future or current benefit of the institution; all the analytical work presented in this dissertation is original and has been produced by the author. The first section of this dissertation (Theoretical Framework) has been produced exclusively (and quite interruptedly) for this dissertation over the course of the last seven years and presents the literature review that is relevant for the topics this dissertation discusses. The literature review on rural finance and microfinance draws from a research paper produced by the author in 2003 in order to obtain the DEA (Diploma de Estudios Avanzados, the Spanish equivalent to All But Dissertation status) from the Universidad Complutense de Madrid, but has since been updated. The literature review on poverty and vulnerability to poverty has been produced exclusively for this dissertation. The second section of this dissertation (National, Sectoral and Institutional Context) draws on and updates previous original work by the author. Specifically, the chapter on the historical context and the current economic and socio-political environment of Cambodia draws from the DEA research paper previously mentioned, but has been thoroughly updated, particularly regarding the poverty profile of Cambodia. The chapter on rural finance and microfinance in Cambodia draws on the same research paper as well as on a paper on Rural Finance and the Microfinance Sector in Cambodia written by the author for the World Bank in 2004, which again has been thoroughly updated following the dynamic evolution of the microfinance industry in Cambodia. The last chapter of this section provides a summary of Concern Worldwide and AMK as institutions; the section on AMK is based on the author's original work under her marketing responsibilities within AMK. Finally, the earlier drafts of the third section of the dissertation (Empirical Study) were produced by the author for AMK use during 2006. This empirical section has thus, benefited from the feedback and thorough reviews of many of AMK's staff, managers, directors and, particularly, the members of the Social Performance Committee, who have been instrumental in verifying the quality of the methodology and of the final output.

In fact, this whole dissertation has benefited from the advice and support of many people throughout the whole process. The author hopes that the list of acknowledgements give all the deserved credit and appreciation to the many people who have contributed enormously to improving this piece of work.

Structure of the paper

The structure of this dissertation is as follows. The First Section provides the underpinnings of the theoretical framework regarding microfinance as well as poverty and vulnerability measures. Chapter I provides an overview of rural finance and Chapter II provides an overview of microfinance, arguing that microfinance defines a credit contract that reaches the poor by excluding the wealthy and better-off either directly or indirectly. In addition, the last section of Chapter II provides an overview of the most recent changes in microfinance along the lines of financial sustainability, outreach, impact and social performance. Chapter III explores the measurements of poverty and vulnerability to poverty, dividing the literature review between one-dimensional measures of poverty (monetary and non-monetary) and multidimensional tools (participatory and indicator-based methodologies). The chapter reviews some key examples of poverty assessment tools applied by microfinance institutions and other emerging trends in measuring poverty, and establishes the reasons behind the choice of poverty measurement tools applied in the empirical section of this dissertation.

The Second Section provides an overview of the Cambodian context, first the historical context and current economic and sociopolitical environment and then the rural finance and microfinance situation in the country (Chapters IV and V, respectively). Chapter VI provides an overview of AMK, the institution used for the case study, and its evolution over time from a program of Concern Worldwide to a licensed independent Cambodian MFI.

The Third Section provides the empirical study undertaken in AMK. Chapter VII provides details on the methodology: the sample and its representativeness, the survey tool applied for both poverty measures; the construction of the AMK Wellbeing Score and the construction of the AMK Food Expenditure measure. Chapter VIII analyzes the results of both measuring tools and compares their results.

Finally, Chapter IX in the Fourth Section provides the overall conclusions of this dissertation, along with a discussion of the potential for future work ahead and the policy implications.

SECTION 1 – THEORETICAL FRAMEWORK

The First Section covers the theoretical framework for microfinance and for measuring poverty and vulnerability. Chapter I and Chapter II summarize the theoretical underpinnings of rural finance and microfinance answering the question of why microfinance is able to reach the poor when other rural finance programs have been unable to do so. Chapter III explores the different methodologies to measure poverty and vulnerability to poverty as well as the experience of microfinance institutions to date.

Chapter I discusses the change in paradigm from agriculture-led development towards a rural finance development approach in order to explore the reasons why the poor were excluded from the subsidized direct credit approach. The theoretical framework of rural finance explains the economic theory behind the main barriers that prevent the formal financial markets from serving poor rural households and is based on the imperfection of credit markets and contract theory. Microfinance (or more specifically microlending) defines a credit contract that reaches the poor by excluding the wealthy and better-off either directly (by not allowing them to be eligible for the program) or indirectly (by using a combination of the mechanisms explored in the chapter).

Chapter II defines microfinance, its main features and characteristics and discusses its three main objectives: financial sustainability, outreach and impact.

Chapter III deals with the theoretical framework for measuring poverty, and defines vulnerability as shorthand for "vulnerability to poverty." The chapter provides a brief summary of the different methodologies for measuring of poverty applied in the last decades and divides the conceptual framework into one-dimensional and multidimensional poverty measures. The one-dimensional tools to measure poverty are further divided into monetary and non-monetary. Multidimensional tools are further divided into participatory and indicator-based methodologies. For each of the main categories, the chapter covers the microfinance experience measuring poverty to date. The chapter also includes the most recent addition to the measuring poverty debate: subjective measures of welfare and the concept of vulnerability. Finally, the last section of the chapter summarizes the reasons behind the choice of the two tools to measure poverty that are the focus of this dissertation.

Chapter I – RURAL FINANCE

The theoretical framework of rural finance covers how economic theory explains the main barriers that prevent the formal financial markets from serving poor rural households. The first section covers the change in paradigm towards a rural finance development approach to discuss why the poor were excluded from subsidized direct credit in the agriculture-led development approach. The second section identifies the main barriers to providing credit as information and enforcement problems, further studying the direct and indirect mechanisms commonly used by microfinance to overcome these problems.

A financial market is a market for the exchange of capital and credit in the economy and is divided into the money market and capital market. Thus, the rural financial market refers to the relationships and transactions between buyers and sellers of financial assets who are active in rural economies; their transactions include borrowing, lending and the transfer of ownership of financial assets.

The relationship between the development of financial markets and economic growth has been established: financial markets develop as a consequence of economic growth and, in turn, financial markets act as a stimulus to the growth of the real economy (Lewis, 1995). Levine (1997) summarized the literature of the various functions performed by the financial system in economic growth and development, while empirical studies have detailed the causal relationship between finance and development (World Bank, 2001 and Levine et al., 2000). Finance provides important services to an economy such as providing payment services; mobilizing savings; allocating credit; and allowing actors to price, pool and trade risks (Meyer and Nagarajan, 2000). Further empirical evidence has attempted to document how the development of financial markets can reduce income inequality and poverty levels in the developing world, both directly through widening the poor's access to financial services and, indirectly, through the impact of financial development-led growth on poverty reduction (Jalilian and Kirkpatrick, 2001 and Westley, 2001).

While there is little disagreement in the literature that the lack of access to reliable financial services is a major constraint for poverty reduction, how to best develop financial markets in developing countries has been a contentious issue.

In the 1950s, 1960s and 1970s, it was thought that poor people were too poor to save and that developing countries were too poor to mobilize savings internally. The solution was, therefore, the transfer from rich countries to poor countries and the disbursement of cheap credit to the poor (Quiñones et al., 2001). While this strategy referred to the financial markets, it was also embedded in a wider policy objective for the development of third world countries. In the context of the green revolution, the main objective of this development strategy was to increase agricultural production (rather than rural development per se) and it focused on subsidizing interest rates on loans and directing subsidized credit to priority crops and borrowers.

On the policy level, the last decades have witnessed a gradual shift from a paradigm of agricultural credit to an emphasis on rural development as a whole. With respect to the financial markets, since the 1980s the assumption that the poor cannot save and that poor countries cannot internally mobilize savings has gradually shifted: the poor do save and, indeed, their marginal propensity to save is usually higher than that of the non-poor (Quiñones et al., 2001).

The Change of Paradigm

In the 1970s, policy makers began to realize that the substantial donor investments in agricultural development projects with credit components were not achieving the desired results: that is, they were not encouraging agricultural modernization and growth. Simultaneously, a new paradigm[1] was gradually emerging. The main three factors that fostered the shift towards this new paradigm were the failure of directed subsidized credit, the simultaneous success reported by microcredit programs and the shrinking of donor resources. This section will explore each in turn.

According to Meyer and Nagarajan (2000), policy makers in the 1950s, 1960s and 1970s assumed that farmers lacked access to formal credit, that informal lenders charged usurious

[1] "… the term paradigm… stands for the entire constellation of beliefs, values [and] techniques… shared by the members of a given [professional] community" (Kuhn, 1970:175 cited in Vogel and Adams, 1997)

rates and that these informal loans were unsuitable for financing the productive investments considered essential for agricultural development. Thus, supply-led directed agricultural credit policies were implemented with the objective of enabling small farmers to adopt new (and often riskier) crop technologies. In turn, this was meant to shift poor rural households from subsistence agriculture towards commercial agriculture. The standard approach was to set up state-owned specialized institutions that received concessional loans to be on-lent at below-market interest rates to targeted agricultural producers, for specific types of inputs or investments (Yaron et al. 1997). During the 1970s, countries such as Brazil, India, Indonesia and Mexico used directed credit as their primary development instrument (Vogel and Adams, 1997).

However, two events were instrumental in the shift away from the directed credit paradigm: the 1972/73 Spring Review of Small Farmer Credit by the United States Agency for International Development (USAID) and the 1975 World Conference on Credit for Farmers in Developing Countries held in Rome at the Food and Agriculture Organization of the United Nations (FAO) (Meyer and Nagarajan, 2000). The findings of these two events implicitly challenged the direct credit approach by offering a radically different vision. The main conclusions are captured in the following ten points (Meyer and Nagarajan, 2000: 37-38):

- Small farmer credit projects are part of a larger rural capital market. Small farmers tend to have greater access to informal sources, and the major increases that occurred in the formal finance have mainly gone to larger farmers.
- The introduction of special, subsidized agricultural credit programs inhibits commercial lenders from expanding into rural markets. This helps perpetuate the dualism observed in rural financial markets.
- Low interest rates (in both nominal and real terms) are the most contentious issue. Many analysts argue that low interest rate policies are a major factor determining the observed distorted patterns of credit allocation.
- Preferential interest rates for small farmers are especially detrimental to improving access to formal loans, and are not an effective way to transfer income to small farmers.
- Low interest rates are more important in determining the ability of institutions to cover costs and risks rather than they are in influencing farmer demand for loans. The

profitability of new technology, the supply of related farm inputs, and the prices received by producers are more important in determining farmer adoption than access to low interest loans.

- When interest and other subsidies are provided, they should be utilized to build up institutions rather than passed on to farmers in low interest loans. Savings mobilization should be given more emphasis in financial policies. The low interest rates paid on savings are detrimental to rural savings mobilization.
- Loan default rates are high and demand more attention but crop and credit insurance and loan guarantees are not likely to be good solutions for the problem.
- The administrative costs of lending are high and require cost-reducing innovations such as partial service bank branches, mobile banks, village bank agents, and the creation of rural banks. Group lending contributes potentially more to cost reduction than to improving debt recovery.
- There is no single best type of institution to provide rural financial services. Commercial banks, agricultural development banks, and farm cooperatives have all experienced successes and failures in serving agriculture.
- The benefits of small farmer credit projects may not cover costs. When the conditions for successful credit projects are not met, other programs may be capable of raising small farmer welfare at lower costs.

During the late 1970s and the 1980s, additional research was undertaken on rural financial markets.[2] The results generally tended to support the critical observations made in the Spring Review and FAO conference as well as the follow-up World Bank and USAID-funded colloquium that took place in Washington DC in 1981. The book *Undermining Rural Development with Cheap Credit* (Adams et al., 1984) summarized the factors that hampered the evolution of financial markets: agricultural credit programs served principally large farmers; had substantial amounts of credit funds diverted to other uses due to the fungibility of money; crowded out alternative funding sources (lack of savings mobilization); did not support a sustained expansion of new technologies by farmers; resulted in low bank profits; and did not service the total financial needs of farm households which include also non-farm and off-farm activities.

[2] See, e.g., Adams et al. (1984), Adams and Vogel (1986) and Braverman and Guasch (1986).

In several cases, including countries in Latin America, the Philippines, Sri Lanka, and Indonesia, large subsidized credit programs collapsed in the 1970s and early 1980s, adding to the criticism of the directed credit paradigm (Vogel and Adams, 1997). According to Seibel (1994), loan recovery was poor because targeted farmers perceived the loans as a free gift and because loans of the wrong size were provided at the wrong moment for the wrong customers. Thus, cheap credit undermined development rather than enhancing it.

These ideas are still popularly known as the 'Ohio School' in honor of a group of economists at Ohio State University who provided the intellectual underpinning.[3] Hulme and Mosley (1996) challenge the views of the Ohio School approach, stating that the fundamental problem is the School's assumption (usually implicit rather than overt) that informal financial markets in developing countries are characterized by perfect competition and that those producers who can use credit productively are able to reap the advantages of such competition. The authors argue that it is a cliché that such informal markets do exit and that when they to exist, they are often monopolistic (1996:4). Further the authors state that in such a situation "it is disingenuous to propose 'the closure of development finance institutions,' hoping that the private sector will take up the slack, since that is the last thing which the private sector, anxious to limit its own risks, is likely to volunteer to do" (1996:5). However, Hulme and Mosley acknowledge the positive contributions of the Ohio School, noting the emphases on the behavior of financial markets as a whole rather than of individual institutions within those markets; on the practicalities of how voluntary savings are mobilized, and on the political threats to the viability of rural financial institutions (1996:3).

Simultaneous to the documentation of the shortcomings of agricultural credit, studies began to appear documenting that the microcredit approach produced superior results. The emergence of microfinance started in the 1970s and efforts gained momentum during the 1980s, especially in Bolivia, Bangladesh and Indonesia. One of the most well-known innovators was Professor Muhammad Yunus, who started an action-research project in 1976 in the village of Jobra, Bangladesh that eventually would become known as the Grameen Bank. [4] Both Yunus and the Grameen Bank shared the Nobel Peace Prize in 2006 "for their

[3] The best-known members of the Ohio School are Dale Adams, Carlos Cuevas, Gordon Donald, Claudio Gonzalez-Vega and J.D. Von Pischke (Hulme et al., 1996).
[4] Grameen transformed into a bank in 1983. Grameen Bank is often considered to be the first organization to start microcredit. However, Opportunity International (a not-for-profit religious organization) begun making

efforts to create economic and social development from below" (El País, 2006). By the mid-1980s microfinance experiences were beginning to be researched systematically and by the early 1990s suggestions for best practice emerged (Meyer and Nagarajan, 2000).

Although Hulme and Mosley state that the Ohio School's claim that interest rate subsidies are captured by the rich is not often put to the test, they also acknowledge the careful study of Costa Rica by Vogel (1984) that demonstrated that "approximately 80 percent of bank agricultural credit and hence about 80 percent of the subsidy went to the large farmers who received the largest 10 per cent of the loans" (1996:7). Gonzalez-Vega (1984) provided additional information on how subsidized interest rates, which were designed to reach the poor, in fact benefited the rich who successfully competed to obtain scare resources. The elites or the politically-connected entrepreneurs were able to benefit from subsidized credit through two main mechanisms: corruption and a better position to compete for credit. In a corrupted credit delivery mechanism, the wealthy and powerful were able to tap the resources intended for a poorer segment of the population. In the cases in which corruption was not an issue, credit still ended up in the hands of larger and wealthier farmers. This was because lending to small farmers entailed higher delivery and transaction costs. Because transaction costs tend to be constant per loan (regardless of the loan size) banks often preferred to allocate high-volume loans to a few larger farmers and thus they neglected the small farmers and the poor.

As shown by the literature reviewed in this dissertation, in order to prevent the interest rate subsidy being captured by the rich, the Ohio School proposes to eliminate subsidies all together. On the contrary, Morduch (2000) argues that the lesson from the failures of the 1960s and 1970s is not to avoid subsidies altogether but rather to avoid *excessive* subsidies. Morduch further argues that while the problems are fully avoided when subsidies are eliminated, they may also be greatly reduced by just partial elimination of subsidies. For instance, loans at 0 percent real rates will seem appealing to the politically-powerful when their alternative, formal sector sources, charge 15 percent per year or less; however loans around 15-20 percent will seem much less appealing. At the same time, rates around 15-20

small-scale loans in Colombia in 1971 and Accion International started operating in Brazil in 1973 (Wampfler et al., 2006: 15). Other similar key success stories include Pancho Otero with the Fundación para la Promoción y Desarrollo de la Microempresa (PRODEM) that eventually became BancoSol in Bolivia and the innovators developing the Unit Desas of the Bank Rakyat Indonesia (BRI).

percent provide meaningful subsidies for poor households but are not perceived as gifts (2000:9).

Thus, there are two apparently contradictory arguments about the lessons learned from the failures in 1960s and 1970s: on one hand the Ohio School's claim that subsidies must be eliminated and, on the other hand, an argument by Morduch that claims that what must be eliminated is excessive subsidies rather than eliminating subsidies all together.

These two arguments, however, concur in two crucial points: (1) that there were failures in the last decades and that these failures were linked to the capture of the subsidies by the elites and (2) that direct subsidies in the interest rate are likely to benefit the elites unless these interest rates are set at a level that does not appeal to the elites and thus, the interest rate should be much closer to the level of market rates or the formal sector rates. The first point provides the answer to why rural finance programs that offered subsidized directed credit have failed in reaching the poor. This is further corroborated by the empirical evidence compiled by the Ohio School. The second point of concurrence of both arguments will be further explored in the second section of this chapter to show how microfinance operators are able to reach the poor, in part by setting interest rates at levels that are unattractive for the elites.

In fact, even Hulme and Mosley -who criticized the Ohio School's proposition of 'closing development finance institutions,' in the hope that the private sector would take over the task- also acknowledge that since their critique to the Ohio School assumptions, "the financial landscape has changed over the last fifteen years in a way in which it makes the use of the term 'development finance institution' of questionable value. This is due to the emergence of innovative financial institutions in the developing world that offer extremely varied solutions to both the screening and the enforcement problems" (1996:7). These innovative financial institutions are precisely the microfinance institutions that will be discussed in Chapter II (page 29 onwards).

The success of microfinance (and of microcredit in particular) and, more importantly, the existence of a better alternative to the directed credit approach undoubtedly contributed to the development of the new paradigm.

Finally, the reduction of donor funding to directed credit offers a less sophisticated but equally important piece in the puzzle of the paradigm shift: subsidized credit programs was not reaching the poor and not recovering loans, while microfinance presented the possibility not only of reaching the poor but also of doing so in a sustainable way and thus becoming (eventually) independent of donor funding.

This reduction of donor funding has affected all development interventions: the Official Development Aid (ODA) from rich countries never reached the target of 0.7 percent of total gross national income (GNI) recommended by the UN back in 1970. The ODA was 0.52 percent in 1960-61 but remained at 0.33 percent in 1970-71 and 1980-81, increasing marginally to 0.34 percent in 1990-91 (Fürher, 1996: 42).[5] In addition, the rural development funding available was gradually shifting towards a more pragmatic approach after bilateral and multilateral donor started publicly accepting the failures of subsidized credit programs and signing on principles of "best practice." Some examples include the "Pink Book" in 1995,[6] the "Key Principles of Microfinance" endorsed by the group of eight most industrialized nations in June 2004[7] or the "Building Inclusive Financial Systems: Donor Guidelines on Good Practice in Microfinance" in December 2004, where these key principles were translated into concrete operational guidance for donor staff (Helms, 2004).[8]

All of these factors collided gradually, encouraging the shift, starting in the 1980s, from the old paradigm of directed subsidized credit to a new paradigm oriented towards financial market efficiency (Robinson, 1997; Vogel and Adams, 1997; Adams, 1998). The new financial system development approach emerged in the 1990s with the dual aim of creating

[5] ODA as a percentage of GNI currently remains at just 0.3 percent of GNI (with the exceptions of Denmark, Luxemburg, the Netherlands Norway and Sweden). Donors argue that this reduction in ODA comes from a fatigue of the limited effectiveness of development aid (Ortiz, 2007:2).

[6] The full title of the Pink Book is "Guiding Principles for Selecting and Supporting Intermediaries," and was jointly developed by the Donors' Working Group on Financial Sector Development and the Committee of Donor Agencies for Small Enterprise Development.

[7] G8 is composed by Canada, France, Germany, Italy, Japan, Russia, UK and U.S.A. These Principles were drawn up by the Consultative Group to Assist the Poor (CGAP), a consortium of 28 public and private member donors and a clearinghouse for microfinance.

[8] It is estimated that the donor community (i.e. public bilateral and multilateral agencies) spent US$800 million–US$1 billion per year on microfinance. However, "the funding landscape for microfinance looks radically different today from how it looked 10 years ago" (GGAP, 2006). As Reille and Forster (2008) state "Microfinance is experiencing an unprecedented investment boom. The past five years have seen remarkable increases in the volume of global microfinance investments. Between 2004 and 2006, the stock of foreign capital investment—covering both debt and equity—more than tripled to US$4 billion. The entry of private investors is the most notable change in the microfinance investment marketplace" "Today there is an increasingly sophisticated network of international private investors looking for ways to invest in microfinance on an ever larger scale" (2008:1, 15).

an infrastructure for the provision of effective financial intermediation services and creating efficient and viable financial institutions. The key aspects are outreach, sustainability and performance with emphasis on market orientation, decentralization and savings mobilization. Thus, the rural financial system development approach covers all financial institutions, financial markets and instruments; the legal and regulatory environment; and financial norms and behavior (FAO and GTZ, 1998). In other words, the new financial market paradigm adopted a three pronged framework for building financial markets: creating the policy environment, building financial infrastructure and developing institutions that combine good client outreach with financially sustainable services. Table I-1 provides a brief summary of the main features of both paradigms.

Table I-1: Main Features of the Paradigms

Features	Directed Credit Paradigm (old)	Financial Market Paradigm (new)
Problem definition	Overcome market imperfections	Reduce risks and transaction costs
Role of financial markets	- Promote new technology - Stimulate production - Implement state plans - Help the poor	Intermediate resources more efficiently
View of users	Borrowers as beneficiaries selected by targeting	Borrowers and depositors as clients choosing products
Subsidies	Large subsidies through interest rates and loan default.	Few subsidies; Create independent institutions
Sources of funds	Governments and donors	Mostly voluntary deposits
Associated information systems	Designed for donors	Designed for management
Sustainability	Largely ignored	A major concern
Evaluations	Credit impact on beneficiaries	Performance of financial institutions

Source: Adapted from Adams, Dale W. (1998)

While the change in paradigm from directed credit to the financial system development approach reflected the changes at the financial market level, at the policy level it reflected a wider change from agriculture-led development to rural finance development. Thus, by the late 1980s the focus on agricultural credit expanded to a wider perspective of rural finance,

encompassing the financing of both farming and rural non-farm activities, as well as local savings mobilization by the same rural financial institutions.[9]

Interestingly enough, evidence from this new paradigm shift and new policy thinking is more frequently found in microfinance than in rural finance policies per se (Meyer and Nagarajan, 2000). By 1997, only a few countries such as Chile and El Salvador applied the new financial market paradigm countrywide. Partial adoption to specific institutions or sectors took place in the Dominican Republic, Egypt, Malaysia, Peru, the Philippines, and Uganda. Reforms of credit unions in Guatemala, Honduras and Niger also used the new paradigm (Vogel and Adams, 1997). One of the most commonly mentioned adherents of the new paradigm was Indonesia, with the transformation of the Bank Rakjat Indonesia (BRI) from a near-extinct state to a success story (Robinson, 2001).

Vogel and Adams (1997) argue that the new paradigm's relatively short list of success stories is due to the time required for implementation: while a program following a directed credit approach can lend funds very quickly once a need has been identified, the general reforms and the institutional development required by the financial market paradigm may require a decade to show effects (e.g. the reforms in BRI). According to Yaron and Benjamin, the new paradigm has spread relatively slowly in many countries, owing in large measure to vested interests in the traditional model and to the challenges involved in selecting and implementing a sharply different set of policy alternatives and institutional designs (2002:339).

Simultaneously with the failure of subsidized direct credit and paradigm shift, the literature started to discuss the success of microfinance. The last section of this chapter will provide an overview of the main barriers to providing credit according to economic theory as well as the theoretical underpinnings of why microfinance has been able to overcome these barriers. Chapter II will delve into the specific characteristics of microfinance, common institutional structures, approaches and delivery methodologies applied.

[9] Regarding the rural non-farm economy and activities, income data from household surveys has revealed that non-farm activities are even more important than suggested by the employment data because the income estimates include non-farm work performed by farm households (Meyer and Nagarajan, 2000:11).

Theoretical Framework: Imperfection of Credit Markets and Contract Theory

Poor households were not usually served by formal financial institutions because they were thought to be unable to save and too risky as borrowers. On the savings side, poor households were thought to be unable to save by definition: the poor cannot save precisely because they are too poor and therefore do not have extra cash. On the lending side, traditional commercial banks (and the formal financial sector in general) typically had no interest in lending to poor rural households because of their lack of viable collateral and the high transaction costs associated with the small loans that are best suited to them (Diagne et al., 2001). The lack of collateral becomes a deterrent for the formal lender because it increases the lender's risks in case of default.[10] Furthermore, lending to the poor is associated with high transaction costs because the transaction costs are a fixed cost regardless of the size of the loan. Thus the costs for the bank (or formal lender) to lend a given amount of money are much higher when providing a multitude of small loans to a multitude of borrowers, as opposed to offering larger loans to fewer borrowers. When the potential borrower is poor, he is more likely to demand loans of small sizes, and thus increase the lender's transaction costs. Additionally, the poor are not likely to offer business plans specifying their intended use of the loan and this increases the costs for the lender to assess the likelihood of repayment.

There is little controversy in the literature about the fact that the formal credit markets have not been able to reach the poor. The theoretical frameworks that attempt to explain why this is the case can be found in the imperfection of credit markets and contract theory.

Imperfection of Credit Markets

According to Hoff and Stiglitz (1990) the problems of serving poor households are explained by economic theory through the imperfection of credit markets. Here, the imperfection of credit markets refers to both *imperfect information* and *imperfect enforcement*. These

[10] The financial contractual procedures usually applied by formal financial institutions to dilute the risk cannot be applied because the poor lack collateral. It can be argued that the same is true when there is a lack of an adequate legal system to guarantee repossession of collateral in case of default.

information and enforcement problems reinforce one another and under such conditions, markets for credit and insurance may not exist (Hulme et al. 1996:2).

When examining rural credit markets, Hoff and Stiglitz (1990) identify three important problems from the lender's point of view that make the rural credit markets behave the way they do: the screening problem, the incentives problem and the enforcement problem. The *screening problem* (or adverse selection problem) refers to the fact that borrowers differ in the likelihood that they will default and it is costly to determine the extent of that risk for each borrower; that is, it is costly to acquire information about the characteristics of loan applicants. The *incentives problem* (or moral hazard problem) refers to the fact that it is costly to ensure that borrowers take those actions which make repayment most likely. Thus, while the screening problem refers to the asymmetries of information that exist at the time of contracting, moral hazard refers to the asymmetries of information that develop subsequent to the signing of a contract.[11] The third problem is the *enforcement problem* (or willingness to pay problem) and refers to the fact that it is difficult to compel repayment – that is, it is difficult to implement mechanisms to increase the likelihood of repayment by individuals who are able to do so (1990: 137).

Hoff and Stiglitz also summarize the main mechanisms for solving these information and enforcement problems. These mechanisms can be divided into direct and indirect mechanisms. Direct mechanisms are the ones in which the lender expends resources to *screen* applicants and *enforce* loans. Indirect mechanisms concentrate on the lender designing contracts such that when a borrower responds to these contracts in her own interest, the lender obtains information about the riskiness of the borrower; at the same time, the contract induces the borrower to take actions to reduce the likelihood of default and to repay the loan whenever he/she has the resources to do so (1990: 238).

[11] The literature's use of the term moral hazard is not entirely uniform. The term "moral hazard" originates in the insurance literature, which first focused attention on two types of information imperfections: the "moral hazard" that arises when an insurance company cannot observe whether the insured exerts effort to prevent a loss and the "adverse selection" problem that occurs when the insured knows more than the company at the time he purchases a policy about his or her likelihood of an accident. However, some authors use moral hazard to refer to either the hidden action or the hidden information variants of the principal-agent problem (Mas-Colell et al., 1995:477). The most common use of the term refers to moral hazard as the original sense of the hidden action problem and this is the use referred to in this dissertation.

An example of an indirect mechanism is the interest rate. The level of interest rate has a dual function in credit markets: it sets the price and it also functions as a screening and incentive mechanism. Stiglitz and Weiss (1981) argue that, given adequate circumstances, a high interest rate induces applicants to undertake projects with lower probability of success but higher payoffs when successful. Therefore, banks may be able to increase their profits by lowering their interest rates to borrowers, because such a measure would lead to a higher proportion of 'safe types' in the portfolio, maximizing the lender's profit. Thus, the interest rate is not only the price of the loan; it is also a screening and incentive mechanism that 'filters' applicants and it affects the quality of the loan in a manner that matters to the lender.

According to Hoff and Stiglitz (1990) other indirect mechanisms and devices commonly used in the rural credit markets include the reputation effect; market interlinkages; regular repayment schedules; collateral substitutes; social sanctions; and collateral and usufruct loans. The reputation effect (also known as progressive or step lending) induces the desired borrower behavior by lending small amounts and increasing loan size only upon satisfactory payments, with the threat to cut-off credit.[12] Market interlinkages refer to the usage of contractual terms of other exchanges to affect the probability of default, as in the case of a lender who is also a landowner or a merchant. For instance, a trader-lender might decide to offer the borrower pesticides at lower prices because that will reduce the borrower's probability of default. Regular repayment schedules screen out undisciplined borrowers. Collateral substitutes might include forced savings, or assets that do not have enough salvage value to be considered collateral but that are of sentimental value to the borrower and it is judged that the pledged items would be particularly problematic for the households to give-up. Social sanctions as used in Rotating Savings and Credit Associations (ROSCAs) are also efficient mechanisms.[13] Lastly, collateral and usufruct loans are those in which the lender occupies and uses the land of the borrower until the principal is repaid.

The mechanisms of collateral and usufruct loans are used in financial markets, but rarely in microfinance; and market interlinkages are used almost exclusively by moneylenders.

[12] However, this mechanism only works if the borrower has some gain to achieve. Morduch argues that in "progressive lending," the threat to cut-off credit will not be effective in the last loan contract because the borrower will not have any incentive to repay the last loan (Morduch, 1999).

[13] ROSCAs explicitly pool savings and tie loans to deposits. Members are usually familiar with each other and contribute a central sum every day, week or month. The total sum of the savings is distributed to each member in turns and the ROSCA will dissolve or start a new cycle once all the members have had their turn. More information on how ROSCAs link savings and loans is available in Besley et al. (1993).

However, the other indirect mechanisms (progressive lending, regular repayment schedules, collateral substitutes and social sanctions) are commonly used in microfinance.

Contract Theory: Why is microfinance able to reach the poor?

Contract theory deals with the mechanisms that attempt to create a credit contract which satisfies the needs of the lender and the borrower. According to Banerjee (2001), contract theory arguments in development economics go back at least to the work of Johnson in the 1940s and 1950s in the context of land markets. Stiglitz, in his 1974 paper on sharecropping, started a tradition of formal contract theory models that seek to explain why landlords and tenants often settle into arrangements that are, at least apparently, less than first best efficient. Similar principles have since been applied to the study of all the other important markets: capital, insurance and human capital (Banerjee, 2001:2).

Indeed, most of these mechanisms are, in practice, used in sets: they are combined to achieve the specific objectives of the microfinance institution. As discussed below, microfinance's main achievements is to overcome these information and enforcement problems and reach poor rural households precisely by combining mechanisms created to serve the poor and exclude the rich.

According to Hulme and Mosley (1996), credit must address three problems: (i) how to ensure that large numbers of poor borrowers can *access* loans; (ii) how to provide a mechanism for *screening* out bad borrowers, both in terms of character and in terms of projects in the absence of written records and business plans; and (iii) how to give borrowers who cannot offer collateral an *incentive to repay* or, failing this, compel them to repay on time. According to the authors, each of these problems can be tackled in different ways by mechanisms that are often complementary. The access problems can be overcome either directly, by excluding borrowers who are 'too rich' to be eligible, or indirectly by charging market-related interest rates (which do not encourage elite capture of loans); by providing loans so small that only the poor will want them; or by adopting requirements to which the wealthy will not agree (e.g. compulsory attendance at weekly meetings or contributions of physical labor). The screening problems can be tackled by abandoning direct interest rate

subsidies, so that borrowers take loans on the basis of prospective returns and not simply to capture subsidies; by providing loans for 'fail-safe' technical packages, fertilizer or milch cow rearing, that 'cannot go wrong'; by using borrower groups to screen for both character and proposed loan use; or by using local power structures so that senior local officials have to approve loan applications. The incentive to repay problem can be approached by the use of either sticks or carrots. "Sticks" may include intensive loan monitoring and supervision, either directly by the lender or indirectly through joint liability groups while "carrots" may include offering progressively larger loans for good borrowers, or rewards to borrowers, bank staff, and even local officials for achieving repayment targets. If all of this fails, compulsory savings schemes can be developed alongside the credit operations which will partially insure the lender against default (1996:8).

On a more theoretical ground, what microfinance institutions have in effect done is to apply innovative credit contracts (which rely partly or exclusively on monitoring by the lender or the borrower's peers) to serve borrowers who have little or no collateral (Madajewicz, 2000:1). [14] At the same time microfinance institutions report loan repayment rates that are in almost all cases above 95 percent (Morduch, 1999: 1571).

The success of microfinance programs is often correlated with (i) being subsidy free and with (ii) enforcing joint liability mechanisms, involving borrowers in sharing information and in decision-making. Regarding the first, the absence of subsidy in microfinance is expected to (a) provide discipline and give borrowers an incentive not to try to grab more credit than they can afford to re-pay; (b) discourage the relatively wealthy from monopolizing the service; and (c) discourage management from trying to establish or expand programs mainly to get access to subsidies, patronage, rent-seeking or other improper benefits that these might generate (Yaron, 1992).

Regarding the enforcement of joint liability mechanisms, Stiglitz (1990) sees group lending as a solution to high transaction costs in both identifying reliable borrowers and ensuring repayment; group lending becomes a solution because the group members engage in peer monitoring. Microfinance schemes that focus on group-lending are able to overcome some of the problems cited above because a member will only participate in a group if it is composed

[14] See Navajas et al. (2003) for a discussion of the adaptation of the terms of loan contracts for BancoSol and Caja Los Andes within the competitive environment of Bolivia.

of other individual members who are likely to repay, and because in case of individual default, members jointly assume the repayment obligations. The underlying assumption is that in group-lending, the potential defaulter will incur other "social costs" that create the incentive to repay. Social costs are not included in the contract of the lender but refer to concepts such as loss of reputation in the community, loss of face and loss of trust. Stiglitz (1990) further argues that peer monitoring has a cost and that it transfers risk from the lender/bank (which is supposedly in a better position to assume risks) to the cosigner of the loan; but joint-liability is of interest to the borrower because this transfer of risk leads to an improvement in the borrower's welfare. Although there is no theoretical basis for group contracts not to require collateral, in practice individual contracts tend to ask for collateral while group contracts tend not to require collateral. Regarding individual contracts, Armendáriz de Aghion and Morduch (1999) provide an interesting argument of how the mechanisms generally used in group contracts can be potentially used in individual contracts as well.[15]

Since the majority of the portfolio of the AMK case study follows a group-lending methodology, the following paragraphs will describe in detail how the credit contract for group-lending is able to overcome the screening, incentive and enforcement problems.

Regarding the screening problem, groups tend to form with homogeneous types of risk-bearers: safer types will tend to look for peers that are also safe types and risky types will tend to group together because safer types will not want them as peers. This behavior is based on the assumption that applicants have more information about their possible peers than the lender or that they can obtain this information at no cost or at a cost they are willing to bear.[16]

[15] The same authors in a more recent book state that "Empirical research on group lending lags behind theory, but the data so far suggest important challenges to the generally optimistic tenor of the theoretical research." (2005:114)

[16] A safer type knows that associating with a risky type increases the probability that they will end up paying the debt of the risky ones (because risky applicants will invest in projects that, although having higher returns when successful, also have higher probabilities of failure). If the project of the risky applicant has a higher probability of default and he is associated with a safe type and both are liable for the loan, that will imply that the safe type will have a higher probability of ending up paying his/her peer's debt. Thus, the safe type will prefer to associate with another safe type because that association reduces the probability of assuming someone else's debt. Even in the event that the risky type would try to offer the safe type an amount of money that pays-off for the increase in probability of having to repay someone else's debt, this amount of money will not make the agreement worthwhile for the safe type (assuming that the terms of the contract are well designed and implemented).

Regarding the incentive or moral hazard problem, if a group is jointly responsible for the loan then the group members will monitor each other (peer monitoring) to guarantee that the actions taken by each of the members will be "safe actions". The assumption, again, is that peers have access to information that the lender does not have or, if it is the case that obtaining the information is costly, then the peers are willing to undertake those costs because they are lower than the likely benefits from the loan.[17]

Regarding the enforcement problem, since the group is jointly responsible for the repayment of the loan even if one member is unwilling to pay, the rest of the group members will force him or her repay or they will need to cover his or her debt and comply with the total repayment, i.e. peers will repay the loan of the one who cannot repay when their own benefit is at risk.[18]

Both academics and practitioners agree that the specific implementation mechanism of a group-lending scheme is the key to its success. Some of these implementation characteristics that have led to success have been pointed out by different studies. Among them, it is thought that success depends on the participation of homogeneous groups (self-selection logic) that are jointly reliable and assume monitoring responsibilities, the ability to deny access to future credit to all group members if one of them defaults and (sometimes) the introduction of compulsory savings that are repaid only when the group loan is repaid fully. However, the specific combination of mechanisms a scheme will apply will depend on the concrete objectives of the microfinance institution and the conditions of the country or region where it operates. A summary of some of the possible advantages and disadvantages of using groups as a delivery mechanism is provided in Table I-2 below.

[17] Varian (1990) analyzed the group incentive scheme of having agents monitoring the performance of other agents in the specific case of the Grameen Bank to reach similar conclusions about the benefits of peer monitoring to solve incentive problems.

[18] However, there is also the risk that the whole group might default, even when some member would have repaid under individual lending. This is because if the majority does not pay, the incentive for the individual to repay decreases or simply disappears. In order to mitigate this latter problem, microfinance programs focus on social collateral (Besley and Coate, 1995).

Table I-2: Advantages and Disadvantages of Group Loans

Possible Advantages of Using Groups	Possible Disadvantages of Using Groups
• Mitigation of *information asymmetry*. • Reduction of *moral hazard*. • Group lending lowers costs of client selection, enforcement and collection (*economies of scale* and *economies of scope*). • It can reach the very poor (it substitutes individual collateral for joint liability). • The meetings become an opportunity for distributing information about productivity or social messages. • It can improve savings mobilization (especially if incentives are incorporated). • It can be based where the clients live or in the workplace (on-site or nearby delivery).	o *Covariance risks*. o Increased *transaction costs* to borrowers. o Often they have high set-up costs. o Poor records and lack of contract enforcement. Also, in some occasions, covering other members' debts in case of default might be difficult to enforce. o Elites might control the flow of services to their benefit or one powerful leader might control the whole group. Also, there is a risk of weakening in the group if the group-leader departs. o If there are repayment problems there might be a domino effect (all borrowers will default). o Group methodology might not fit heterogeneous groups. o Limited loan sizes often do not respond to the increasing needs of borrowers.

Sources: Joanna Ledgerwood, 1999; Yaron & Piprek, 1997; and Mike Goldberg presentation (DL Microfinance October 18, 2001)[19]

Practitioners have also been prolific in identifying the factors of success for microlending schemes. In the case of individual lending, success seems to require frequent and close contact with the individual client and to provide credit products tailored to the specific need of his/her business. Likewise, it is likely to be more successful for larger, urban-based, production-oriented business and for clients who have some form of collateral. In group-based approaches success seems to be linked to the following factors: performance is likely to improve by imposing group penalties/incentives (e.g. no member will receive another loan if other group members default); repeated loans that increase gradually according to the borrower's performance allows for screening out bad risks; disbursement schedules to group members that are based on the repayment performance of other members are likely to improve repayment rates; and small and homogeneous self-selected groups tend to be more effective. Additionally, many group-based programs target the very poor (Ledgerwood, 1999 and WBI, 2001b). Indeed, the rigorous study performed by Navajas et al. (2000) in five

[19] A brief summary of the definitions employed in the argument follows:
Information asymmetry: The lender/bank/MFI lacks information about potential borrowers but the group has knowledge of the individual members such as their economic situation, their creditworthiness, etc.
Moral hazard (hidden actions): The lenders are unable to observe the behavior of the borrowers regarding the loan (e.g. are they investing it in the activity they stated they would?). Solidarity methodology allows for group-supervision and monitoring as opposed to lender-supervision.
Economies of scale: larger clientele with minimal increases in operating costs.
Economies of scope: Increased capacity to deliver multiple services through the same group-mechanism.
Covariance risks: The risk increases if the group is homogeneous and they all invest in the same production activity. *Transaction costs*: The cost of time and voluntary management functions the borrowers are likely to incur.

microfinance institutions in Bolivia finds that group lenders reach the poorest better than individual lenders and that rural lenders show a larger share of the poorest in their portfolio.[20]

Madajewicz (2000) suggests that while for the poorest of the poor, group-loans with peer-monitoring offer higher utility, individual loans (unmonitored or lender-monitored contracts) may offer higher utility to the wealthier among credit-constrained borrowers.[21] As was discussed before, in practice there seems to be a higher tendency towards group lending in rural areas and a higher tendency towards individual lending in urban settings. Studies also seem to suggest that group lending is more efficient in rural settings because communities are more tightly integrated and thus the social costs of defaulting are higher –thus decreasing the lender's risk.

The theoretical framework so far refers to the lending side of financial services and how economic theory explains why formal financial institutions are generally not interested in lending to poor rural households. The reason is that the great majority of the literature about rural financial markets and their difficulty in reaching the poor refers to lending. However, it should also be noted that formal financial institutions have not been particularly interested in providing other financial services such as savings. Firstly, as noted in the previous section, for decades it was thought that the poor were, by definition, too poor to save and thus, formal financial institutions never thought about providing savings services. Even when empirical evidence demonstrated that, actually, the poor do save,[22] the high transaction costs of mobilizing a multitude of very small deposits was likely a powerful deterrent. Nevertheless there is a very crucial difference between savings and credit: savings mobilization does not imply risk for the lender, but rather for the client or depositor. Thus the economic logic of why formal financial institutions have not attempted to offer savings services in the rural markets relies almost exclusively on the high costs involved in mobilizing a multitude of small savings and not in the risks involved in the operations. This is one of the reasons why

[20] Note however that urban lenders had more borrowers, and thus, the share of the urban poorest who were borrowers exceeded the share of the rural poorest that were borrowers.
[21] The implications of the Madajewicz's study is that if both types of contracts are available (instead of a single contract which is the norm) the wealthier among the poor would benefit from access to individual loans instead of being restricted to group-loans and that different patterns of income growth for individual versus group loan programs could emerge. This is because individual contracts tend to give a larger loan and thus they will likely produce larger profits when invested. Madajewicz's evidence from Bangladesh further suggests that group loans have a larger impact on the business profits of poorer borrowers while the profits of wealthier borrowers are higher if individual loans are available (Madajewicz, 2000).
[22] See for example Deaton (1992) or Paxson (1992), as referred to in Kochar (2002).

the literature is less prolific on rural *financial* markets in general while very prolific on rural *credit* markets in particular.

Despite the fact that microfinance's success has provided invaluable tools to better serve poor households, microfinance is not a panacea that will solve all poverty problems. This is even more truthful when related to rural poverty. Indeed, rural areas present especially difficult and costly problems in the provision of financial services. It is no coincidence that many microfinance institutions serve urban clientele and that if they operate in rural areas, their lending methodologies tend to favor the non-farm trade and handicraft sector. In fact, few microfinance institutions provide seasonal and term loans for crop, agro-forestry and livestock production and related processing and marketing of agricultural products. This is mainly due to the specific conditions of rural areas, such as lower population density; lower level of transport and communication infrastructure; covariant risks in production and consumption; seasonality and lumpiness of agricultural cash flows; lower human capital; larger loan amounts and an urban bias in governmental policies. Servicing rural poor households requires more than mere adaptation of models and best practices in microfinance (Zeller, 2003; Meyer and Zeller, 2002).

Chapter II – MICROFINANCE

Chapter II defines microfinance, its main features and characteristics, common institutional structures, approaches and delivery methodologies applied. The last section of the chapter covers the most recent developments in microfinance alongside the concepts of financial sustainability, outreach, impact and social performance.

While most of the literature centers in microcredit or microlending, a conscious effort is made in this literature review to expand the discussion to microfinance in general and not only to the provision of credit or credit services. However, the section that covers how microcredit overcomes market failures is obviously exclusively focused on microlending because that is where market risks for the lender concentrate in a way in which they would normally deter institutions from servicing rural markets. A conscious effort is also made to summarize information about the diverse approaches undertaken by different Microfinance Institutions (MFIs), with the aim of constantly reminding the reader that microfinance is not "a one size fits all" approach that can be replicated endlessly to overcome market failures and achieve success.

Microlending institutions are intended to provide credit to those households that have limited access to credit, either because they are excluded from the formal lending institutions' client pool, because families and friends cannot help or because moneylenders charge a rate that they cannot afford. Poor households may lack access to formal lending institutions but are likely to be served by informal lending institutions. These informal lending institutions may or may not have an explicit cost. If poor households are served by family, friends or neighbors, these loans might not have an explicit economic cost but they might have some social costs (some future obligation might be expected by the lender). If poor households are served by moneylenders they will likely be charged an explicit economic cost for the credit.[23]

At the same time, as the field of microfinance develops, the focus is changing from the delivery of credit-only services to true financial intermediation. Microfinance showed in

[23] Moneylenders tend to charge high interest rates, but some studies have shown that this rate is not usurious but actually reflects the full costs that moneylenders have to bear: cost of capital (which includes unrecoverable loans), overhead, screening and monitoring, and pursuing delinquent loans (Aleem, 1990).

practice that when choosing appropriate mechanisms, poor clients could both achieve high repayment rates for credit (even over the average of commercial banks) and be able to save. In the words of Hulme et al.: "what has now been established beyond all doubt, however, is that the option of lending at the bottom end of the capital market exists, and is not a financial black hole, if design is correctly done and the accompanying policy environment is not actively adverse […] it is possible to establish lending institutions which, given the choice between poverty impact and growth, choose poverty impact and are none the less financially viable" (1996:206).

Definition of Microfinance

Microfinance is simply the supply of financial services to the poor, such as credit, savings, insurance or remittances. Robinson provides a more elaborate definition: "microfinance refers to small-scale financial services –primarily credit and savings– provided to people who farm or fish or herd and who operate small enterprises or microenterprises where goods are produced, recycled, repaired, or sold; who provide services; who work for wages or commissions; who gain income from renting out small amounts of land, vehicles, draft animals, or machinery and tools; and to other individuals and groups at the local levels of developing countries, both rural and urban. Many such households have multiple sources of income" (2001: 5).

Because credit is the most common service offered by microfinance institutions, most of the microfinance definitions seem to be biased towards the provision of microcredit services (as opposed to microfinance services in general). In a different but complementary and refreshing perspective of what is microfinance, Matin, Hulme and Rutherford (2002) argue that financial services for the poor are essentially a matter of helping the poor to turn their savings into lump-sums large enough to satisfy a wide range of business, consumption, personal, social and asset-building needs. Thus, providing the poor with effective financial services helps them deal with vulnerability and can thereby help reduce poverty. Specifically, Rutherford (2000a) describes the three basic mechanisms to achieve a lump-sum: saving up, saving down and saving through. Saving up (Figure II-1) refers to how a series of savings made now is exchanged for a lump-sum in the future. Saving down (Figure

II-2) refers to a lump-sum that is taken now in the form of a loan and exchanged for future savings (which are used for repayment installments). Saving through (Figure II-3) is a continuous stream of savings that is converted when a lump-sum is required; if the amount needed is larger than the withdrawn savings, the saver also takes a loan, using both amounts to create the lump-sum needed, and then repays the loan from future savings.

The simplified graphical explanation of these main mechanisms to achieve a lump-sum is provided below.

Figure II-1: Saving Up

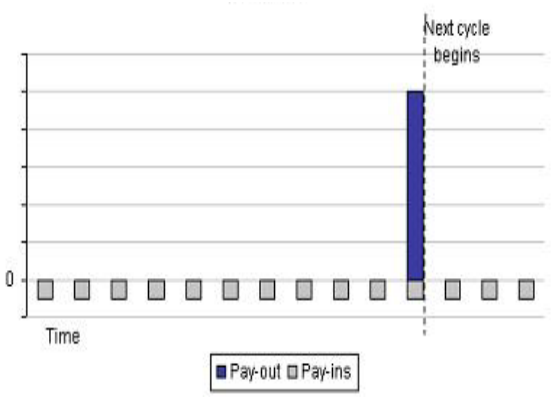


Figure II-2: Saving Down

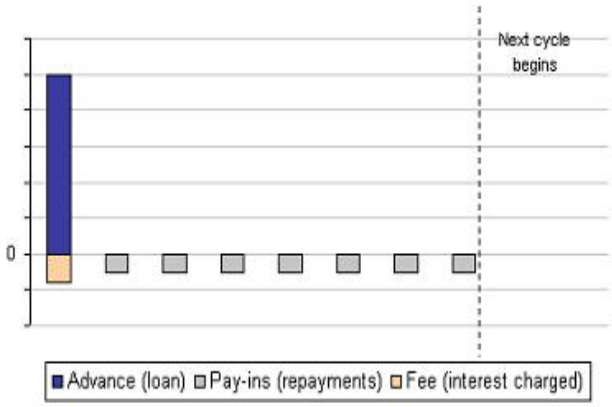
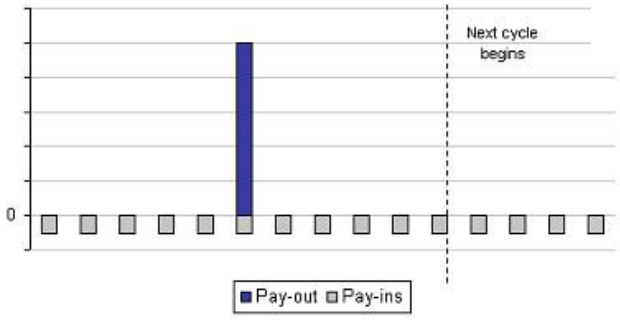


Figure II-3: SAVING THROUGH



Source of figures: Adapted from Rutherford (2000a)

Matin et al. (2002) argue that providing the poor with effective financial services that allows them to achieve lump-sums helps them to cope with risks. More importantly, this way of looking at financial services for the poor invites us to open our minds to other services beyond microcredit.

Institutional Structures, Approaches and Delivery Methodologies

Microfinance providers come in many shapes and sizes and have different types of institutional structures. Ledgerwood (1999) has described how MFIs are commonly structured as formal institutions, semiformal institutions or informal providers. Formal institutions are subject not only to general laws and regulations but also to specific banking regulation and supervision. Examples of formal institutions include public and private development banks; savings and postal savings banks; commercial banks; and non-bank financial intermediaries (e.g. leasing companies). Semiformal institutions are registered entities subject to all relevant general laws (including commercial law) but not (normally) subject to bank regulation and supervision. Examples of semiformal institutions include credit unions and other multipurpose cooperatives (urban or rural), financial NGOs, and (some) Self-Help Groups (SHGs). Informal providers are not known as institutions and are those for which neither special banking law nor general commercial law apply; disputes with informal providers are rarely settled by recourse to the legal system. Examples of informal providers include moneylenders and traders; landlords; (most) SHGs; Rotating Savings and Credit Associations (ROSCAs, such as work groups or multipurpose SHGs); and friends and family networks (1999:97).

However, the concrete factors that determine an MFI's specific institutional structure include the objectives and mission statement; existing financial system; local economic setting; target clients; whether the MFI follows a minimalist or integrated approach; the investors' preferences; the provision of saving services; and the legal options (Goldberg and Bruett, 2001).

Microfinance services can be provided as a component of a wider goal or in themselves. A *minimalist approach* to microfinance is defined as an approach in which MFIs provide only financial intermediation (and sometimes social intermediation if groups need to be formed in order to provide them with loans). Financial intermediation includes credit for working capital and fixed asset loans, savings, insurance, and other financial services. On the other hand, an *integrated approach* is the one in which MFIs offer microfinance services alongside other development activities; that is, an approach that offers financial and nonfinancial services such as social services (education, health and nutrition, literacy training), social intermediation (such as group formation, leadership training, cooperative learning), or

enterprise development services (such as marketing, business training, production training) (Ledgerwood, 1999).

Concurrently, this paper is using interchangeably the term Microfinance Institution (MFI) or Microfinance Operator (MFO) to providers of microfinance regardless of whether they follow an integrated or a minimalist approach and regardless of their legal form (projects or programs of NGOs, dedicated NGOs, cooperatives, MFIs, banks, etc). However, the term "Microfinance Organization" has been consciously avoided and replaced by the term "Microfinance Operator," whenever possible. While the most accurate term should be "organization" but the term "institution" and the acronym MFI are the most commonly used term within the microfinance industry. Copestake reiterates that the distinction between organizations and institutions is useful and well established within the social sciences (if not in the world of microfinance). Organizations are defined as legal entities or agencies. Institutions are defined as durable rules and norms governing how people behave. To become an institution, a rule or norm of behavior (such as charging interest on loans) must be accepted across a community – such as the microfinance industry (2003:64). However, this dissertation uses "microfinance operator," "microfinance provider" and "MFI" terminology as it is quite common within both practitioner and academics writing on the subject.

The message of the literature celebrating the achievements of the microfinance schemes is that if certain simple principles of design are observed, financial interventions sponsored by external agents of change can be a powerful instrument for combating innate imperfections in developing-country capital markets and for bringing about technical change in both agriculture and industry (Hulme et al., 1996:10).

However the previous detailed description of how microlending overcomes market failures does not intend to be a recipe for success. MFIs are not homogeneous and they adapt to the realities of the countries where they operate. The choice of which financial services to provide and the method for providing these services depends on three main factors: the objectives of the MFI, the demands of its target market, and its institutional structure. The combination of these three factors creates a wide range of financial services. This section will briefly discuss the different institutional structures and the most common delivery systems for credit and savings services; it covers some of the most commonly known MFIs as

it describes the methodology they apply precisely to display the rich heterogeneity of microfinance providers and how they have adapted to better overcome market failures.

Almost all MFIs provide credit services, while some others also provide other financial products such as savings, payment services, credit or smart cards, and insurance.[24] For each of these financial products, specific delivery methodologies have been developed over time. Since credit is the most common service and it is provided by almost all MFIs, most of the delivery methodologies have been developed around credit. Savings and other financial products are relatively new to the market and there has been less innovation in how to deliver these services.

The following section describes the common methodologies used for each of these financial products (credit, savings, and others).[25]

Methods for credit delivery

The methodology for credit delivery can be divided in two main groups: individual lending and group-based approaches.

In an individual lending approach, credit is delivered to individuals based on their ability to provide the MFI with assurances of repayment and some level of security. Loan amounts and terms are based on careful analysis by the credit officer and detailed financial analysis and projections are often included with the loan applications. Legal and financial documentation is required. The loan is usually disbursed at the branch office and periodic payments are made at the branch or through pre-approved payments. In these MFIs, credit officers work with a relatively small number of clients (60 to 140) and supervise their clients regularly, developing close relations with them over the years. Credit officers are often recruited from

[24] As Armendáriz de Aghion and Morduch highlight "Being able to save and borrow is, in itself, an important way to self-insure against uninsurable events. (2005: 172).
[25] Unless otherwise indicated, the information discussed in the section on delivery methodologies for credit, savings, and other services draws on the work of Ledgerwood (1999).

the community, so they have knowledge of the clients' creditworthiness (i.e. character-based lending).[26]

In group-based approaches, credit is delivered to groups that guarantee the loan. Peer-pressure becomes a substitute to collateral; since there is joint-liability for the whole group, individual members will not default on the loan for fear of letting down or suffering social sanctions from other members of the group. Groups are usually self-selected and range from 3 to 50 members. The loan can go either to an individual member of a group or to the whole group which in turn provides the loan to individual members. There are different models of group-based lending. A description of the methodology and operational approaches of the most well-known group-based lending models is provided below:

Grameen Solidarity Group Lending was developed by Grameen Bank of Bangladesh to serve rural, landless women wishing to finance income-generating activities. The Grameen Trust has more than 40 replicators in Asia, Africa and Latin America. The Grameen methodology is based on self-formed peer groups of 5 unrelated members; group members mutually guarantee each other's loans and are held legally responsible in case of default by other members. No further loans will be available if all members do not repay their loans on time. No collateral is required, but the self-formed peer groups must attend weekly meetings and provide weekly savings contributions. The meetings also provide activities to build self-esteem and enforce discipline. The peer groups are incorporated into village centers of up to 8 peer groups. After 4 to 8 weeks of contributing savings, members can apply for a loan (they need to save during the loan period as well). Loan appraisal is performed by group members and center leaders. Loans are made to individuals within a group by the local credit officer at the weekly meetings. Branch staff verify information and supervise clients' businesses. Credit officers usually carry between 200 and 300 clients.[27]

Latin American Solidarity Group Lending model was developed by ACCION International in Latin America and has been adopted by many MFIs. The model makes loans to individual

[26] Some examples of institutions following an individual lending approach include: Caja Social in Colombia; ADEMI in the Dominican Republic; Cajas Municipales in Peru; FEDECAM in Benin; Alexandria Business Association (ABA) in Egypt; Agence de Crédit pour l'Entreprise Priveé (ACEP) in Senegal; Self-Employed Women's Association (SEWA) in India; Bank Rakyat Indonesia (BRI) in Indonesia.

[27] Examples of institutions that follow the Grameen model include: Sahel Action in Cameroon; Grameen Bank and Bangladesh Rural Advancement Committee (BRAC) in Bangladesh; Center for Agriculture and Rural Development (CARD) and Tulay Sa Pag-unlad Inc (TSPI) in the Philippines; Women's Union in Vietnam.

members in self-selected groups of 4 to 7 members. The members cross-guarantee each others' loans to replace traditional collateral (i.e. group members collectively guarantee loan repayment) and access to subsequent loans is dependent on successful repayment by all group members. Loan application is simple and reviewed quickly. Loan disbursement is made to the group leader at the branch office, who distributes it to individual members (group members normally receive equal loan amounts). Loan amounts and terms are gradually increased over time if clients perform well. Loan approval is the responsibility of the credit officers. Credit officers regularly work with 200 to 400 clients and thus rarely know their clients very well. Some institutions encourage "intragroup emergency funds" to serve as a safety net.[28]

The *Village Bank* model was developed in the 1980s by the Foundation for International Community Assistance (FINCA). Village Banks are community-managed credit and savings associations established to provide access to financial services in rural areas, build community SHGs and help members to accumulate savings. Membership is based on self-selection and usually ranges from 10 to 50 people, most of whom are women. Village Banks are financed by the internal mobilization of members' funds as well as external loans. A Village Bank consists of its members and a management committee (which receives training from the sponsoring MFI) and it has a high degree of democratic control and independence. All members of the Village Bank sign the loan agreement to offer a collective guarantee. Members' savings are tied to loan amounts and are used to finance new loans or collective income generating activities. No interest is paid on savings but the members receive a share from the bank's investment profits (the dividend distributed is directly proportional to the amount of savings each individual has contributed to the bank). Regular weekly or monthly meetings are held to collect savings deposits, disburse loans, handle administrative issues, etc. Village banks have two sources of funds: external account and internal account. External account is the seed capital that the sponsoring MFI lends to the bank. This amount is, in turn, re-lent to its members (the total amount lent is the sum of all individual members' loan requests). External account loans to the Village Banks are generally provided in a series of fixed cycles (usually 10 to 12 months each with lump-sum payments at the end of each cycle). Internal accounts are the funds from the mandatory savings and the interest earnings from lending the fund to members. The methodology anticipates that each member will save

[28] Examples of institutions that follow the ACCION model include: Fundación para la Promoción y Desarrollo de la Microempresa (PRODEM) and Banco Sol in Bolivia; Asociación Grupos Solidarios in Colombia; Genesis and Prosem in Guatemala.

a minimum of 20 percent of the loan amount per cycle. Loans from the internal account set their own terms and are generally shorter with higher interest rates than those of the external account.[29]

Self-Reliant Village Banks (Savings and Loan Associations) are established and managed by rural village communities. This model was also developed by an NGO, the Center for International Development and Research, in the mid 1980s but Self-Reliant Village Banks differ from Village Banks in that they cover the whole village population and not a subgroup of 10 to 50 people. In this model, the supporting program identifies villages with strong social cohesion and clear desire to set up a village bank. The members of the village determine the organization and rules of the bank. They elect the management and credit committee and 2 or 3 managers. Management is highly decentralized. Central services are limited to internal control and auditing, specific training and representation. These services are paid by the village bank, which guarantees the financial sustainability of the model. The sponsoring program does not provide lines of credit and the bank must rely on its savings mobilization. Self-reliant village banks mobilize savings and provide short-term loans to villagers on an individual basis. Loans are individual and collateral is necessary but the emphasis to ensure repayment is on village trust and social pressure. After 1 or 2 years the bank creates an association that acts as an intermediary and negotiates lines of credit with local banks (usually an agriculture development bank). This links the village banks to the formal financial sector.[30]

The following table outlines the basic distinctions between archetypical individual and group lending methodologies. Please refer to Annex 1 for a comparison of the characteristics among individual and group-based approaches regarding the products and services they offer and the types of clients they tend to serve.

[29] Examples of institutions that follow the Village Banking model include: Freedom from Hunger in Bolivia, Burkina Faso, Ghana, Mali and Thailand; FINCA-Costa Rica and FINCA-Mexico; Save the Children in El Salvador; CARE in Guatemala; Catholic Relief Services (CRS) in Benin and Thailand.
[30] Savings and Loan Associations models are found in Burkina Faso, Cameroon, Madagascar, Mali, Sao Tome and The Gambia. They are usually named Self-Managed Village Savings and Credit Associations or Caisses Villageoises d'Epargne et de Crédit Autogérées .

Table II-1: Comparison of Archetypical Individual and Group Lending Methodologies

	Individual Lending	Group Lending
Collateral	Loans are guaranteed by collateral and /or cosigners	Loans are mutually guaranteed with other borrowers
Participant Screening	Potential clients are screened by credit checks and character references	Potential clients are screened by their peers
Loan Analysis	Loan amount is based on thorough viability analysis	Little or no analysis is made of the business, except by peers, who may be familiar with it.
Loan Flexibility	Loan size and term can be tailored to the needs of the business	Loan size and term closely follow a predetermined gradual growth curve
Loan Size and Term	Loans can reach large sizes and lengthy terms, depending on client's specific needs	Loans are generally short and amounts small, to avoid breakdown of repayment incentives
Staff-Client Relationships	Program staff work to develop close, long-term relationships with clients	Program staff have a distant relationship with large number of clients
Cost / Participant	Each client represents a significant investment of staff time and energy	Each client represents a small cost in terms of staff workload
Cost / Portfolio	Low cost, owing to relatively larger size of fewer loans, despite inefficiencies of working with fewer people	High cost, owing to relatively small size of many loans, despite efficiencies grained by working through groups

Source: Goldberg, Mike and Tillman Bruett. "Principles of Microfinance: Institutional Structure and Delivery Mechanisms". World Bank Microfinance for non-specialists distance learning course. October 18, 2001 http://www.worldbank.org/wbi/banking/eastasiamicro/pdf/mod02_finsvcs_matrix.pdf

Methods for savings delivery

There are two main commonly used methods for savings delivery: compulsory savings and voluntary savings.

Compulsory or mandatory savings are those that must be contributed by borrowers as a condition for receiving a loan (sometimes as a percentage of the loan, sometimes as a nominal amount). Although they are an asset, usually clients perceive them as a part of the loan product, i.e. as a fee that must be paid in order to participate in the credit program. Besides serving as an additional guarantee mechanism to ensure the repayment of loans, mandatory savings have been found useful to demonstrate the value of financial saving practices to borrowers, to demonstrate the ability of clients to manage cash-flow and make periodic contributions (which is useful for loan repayment), and to help to build up the asset

base of clients. However, compulsory savings usually have stringent withdrawal conditions as long as borrowers have outstanding loans.

Voluntary savings are not a mandatory condition for accessing credit. Both borrowers and non-borrowers can save, the interest rates are variable and withdrawal conditions are flexible. The main difference is that while mandatory savings assume that the poor need to learn financial discipline (i.e. to be taught how to save), voluntary savings assume that the poor already know how to save (in fact, they already save) and what they need are flexible savings mechanisms adapted to their needs.

Although few MFIs provide voluntary savings, there seems to be a strong demand for saving products in poor households in some countries: In 1991 BRI in Indonesia reported 2 million borrowers and 16 million depositors. Savings has important direct advantages for low-income households: they can build up a reserve to reduce consumption volatility over time, they can self-finance instead of having to turn to creditors and -if they decide to do so- savings allow them to build up assets to use as collateral (Robinson, 2001). Additionally, there are other plausible benefits for the MFIs from saving schemes designed for poor households: savings can provide an inexpensive (or lower cost) source of capital for re-lending as well as create a natural client pool (today's depositors may be tomorrow's borrowers). But micro-savings also have inherent potential or real problems such as the high administrative costs of handling a large quantity of small deposit accounts, compliance with government regulations for saving institutions, the interest rate spreads and the question of how to manage the savings: re-investment opportunities that guarantee convenience and security in the context of inflation or investment in (volatile) foreign capital markets.

In addition to offering credit and savings services, MFIs are experimenting with other products and services such as insurance, credit and smart cards and payment services, but these have appeared recently and fewer examples of delivery mechanisms are available. Examples of insurance services include the Grameen Bank in Bangladesh and SEWA in Gujarat, India.[31] Cards allow borrowers to access a line of credit when needed while reducing the administrative and operating costs. Smart cards are similar to credit cards but

[31] In the case of Grameen, each member is required to contribute 1 percent of the loan amount to an insurance fund which will cover the loan amount and the funeral costs in case of death of the borrower. SEWA offers life insurance for women workers.

they have a memory chip with information about the client's available credit and are generally not available for use in retail outlets.[32] Finally, examples of payment services include check cashing, check writing, transfer of funds and remittances.

In conclusion, the institutional structure of an MFI (whether formal, semiformal or informal) and the methodology for delivery of services it chooses to apply (such as individual or group lending approaches in credit delivery) combine to create the specific characteristics of a particular MFI and thus its specific way of providing microfinance services and overcoming market failures. Although we have identified best practices for specific methodologies of delivery, these cannot be understood as recipes for success. Ultimately, the success or failure of one particular MFI will depend on how well its institutional structure and delivery methodology fit its objectives, how well it meets the needs of its clients and how well it adapts to the environment (legal, financial, economic, and geographic) where it operates.

Recent Changes in Microfinance

The most recent changes within the microfinance industry can be summarized into the "Triangle of Microfinance," a term coined in the 2002 book edited by Manfred Zeller and Richard L. Meyer. The critical triangle of microfinance reflects the three objectives of financial sustainability, outreach and impact. Financial viability or sustainability refers to the ability of an MFI to cover all its costs with earned revenue (Ledgerwood, 1999:267). Outreach is defined as the expansion of the financial frontier to people previously excluded from accessing banking services while impact is defined as the benefits received by the poor (Meyer and Zeller, 2002:362). The authors conclude that all MFIs attempt to contribute to these objectives, but many stress one particular objective over the other two. Some may produce large impacts but achieve limited outreach. Other may have smaller impacts but are highly sustainable (2002:5).

Another relevant change within the microfinance industry is the introduction of the concept of social performance, as opposed to financial performance, as well as the different attempts

[32] Some examples of institutions providing these services are ADEMI in the Dominican Republic for credit cards and Swazi Business Growth Trust in Swaziland for smart cards.

to create a common framework for measuring the social performance of a microfinance institution.

The following sections discuss these issues. First, financial sustainability and its implications are defined. Secondly, the concepts of outreach, impact and social performance are introduced, defined and differentiated. Note, however, that the full review of outreach tools will be further discussed in Chapter III. The third section summarizes the main trade-offs and synergies among these concepts.

Financial Sustainability

On the technical side, an MFI is considered to be sustainable when it can fully cover all its costs with internally generated income.[33] While income is composed of interest and fees, costs include operating costs, the costs of obtaining the funds for loans and the cost of inflation. The concept of sustainability can be also seen as a continuum subdivided in three levels: operational sustainability, financial sustainability and institutional sustainability. If an institution can cover all its operational costs (administrative expenses, salaries, rent, provision for loan losses, depreciation of fixed assets, etc.) with internally generated income, it is said that an MFI is Operationally Self-Sufficient (OSS). If an institution can cover not only its operational costs but also all the financial costs (the costs of obtaining the funds for the loans and the costs of inflation, i.e. the adjusted cost of capital), it is said to be Financially Self-Sufficient (FSS).[34] Please refer to Annex 2 for a technical description of how to measure sustainability.

If an MFI can cover all its operational costs and financial costs, and it is also able to generate enough profits to meet all other institutional development needs, it is then said to be Institutionally Self Sufficient. The development of the institutional capacity of an MFI does not only entail promoting good management but also improving its business orientation, ensuring an adequate governance structure (i.e. the board responsibilities and accountability), suitable human resources (improving staff capacity development and setting adequate staff

[33] The technical description of sustainability draws on Ledgerwood (1999). Please refer to Annex 2 for a technical description of how to measure sustainability.

[34] Basically, this means that even when the MFI is partially subsidized (either through donation/grants or through soft loans below market value) the institution would calculate all its costs as if it were to obtain all its funds from commercial sources and at market interest rates. Additionally, the cost of inflation will need to be added.

incentives), and dependable Management Information Systems (MIS) to provide timely and accurate information on key performance indicators which are used in monitoring progress in operations as well as in controlling delinquency.[35] Thus, sustainability and building institutional capacity in MFIs are not limited to setting adequate interest rates to cover the MFI's full costs. Success also involves offering customer-oriented products, minimizing delinquency and reducing costs.

On the policy side, the concept of sustainability refers basically to the inappropriateness of subsidies to reach the poor and the necessity to provide services to their clients permanently. In this context, subsidies relate to two different concepts: subsidized credit rates and subsidized programs or institutions. As already seen, subsidized credit rates are often inefficient, they tend to undermine savings mobilization and elites benefit from these subsidized rates more than do the poor for whom they are intended.[36] On the other hand, subsidized programs or institutions refer to operators funded by grants or donations or financed with rates below market value.

Regarding the first concept, it is relevant to provide some information about the level of interest rates charged by MFIs. Morduch (1999a) reports that microfinance practitioners have different concepts of the elasticity of credit demand with respect to the interest rate. Thus, practitioners in Bangladesh think that the elasticity is high and they charge low interest rates of about 25 percent in real terms; on the other hand, practitioners in Latin America tend to believe that the elasticity is low and they set interest rates approaching 60 percent real.[37] Robinson (2001) provides additional examples of microfinance banks that provide nominal monthly rates below 5 percent. Concretely, she reports that Banco Sol in Bolivia charges between 3.75 and 4 percent monthly in loans in bolivianos (between 2 and 2.5 percent per month in loans in US dollars) while BRI in Indonesia charges 2.8 per cent per month for

[35] Financial performance indicators are the indicators and ratios commonly used to assess the performance of MFIs. They attempt to provide measures about the MFI improvements in outreach, profitability, income and expense, efficiency, productivity, quality of the portfolio and capital and liability structure.
[36] Since the better-off capture most of the loans, they also capture most of the subsidies attached to the loans, heightening the credit-equity problems that initially induced policy makers to promote directed credit (Vogel and Adams, 1997:7).
[37] In November 2007, Fernando Prado (secretary of the Asociación de Entidades Financieras Especializadas en Micro Finanzas in Bolivia, ASOFIN) reported an interest rate of 19.8 percent in Bolivia – which covers the operational costs. In addition he reported interest rates of 94 percent in Mexico; 52 percent in Ecuador; and 36 percent in Peru (El Nuevo Día, 2007:B5).

prompt payers.[38] This further suggests that MFIs are adapting their interest rates to the specific realities of the countries and regions where they operate and to their objective of becoming sustainable; by doing so they are setting interests rates at a level that is not appealing for those elites that used to capture subsidized interest rates in the old paradigm.

Regarding the second concept of subsidized programs or institutions, Morduch reports that most programs continue to be subsidized directly through grants and indirectly through soft terms on loans from donors (1999b:1571). Hulme et al. (1996) argue for temporary subsidies for microfinance operators to compensate for the externalities of an environment characterized by market failure on a massive scale. However, the authors reiterate that such subsidies should be provided to motivate higher performance of the institution through institutional development and they should not be provided for direct interest rate subsidies (1996:202).

The degree of sustainability is not an uncontested issue: there are arguments against and in favor of totally financially sustainable MFIs. The argument against totally financially sustainable MFIs is based on two main ideas. The first is that subsidizing credit might be a more cost-efficient option than other development programs for poverty alleviation, (e.g. primary health, education. etc.) (Morduch, 1999). The second idea is that moderately subsidized credit can be well targeted (i.e. to those poor households that cannot pay high real interest rates), delivered efficiently, and can be compatible with savings mobilization (Morduch, 2000).

The arguments in favor of financially sustainable MFIs are mainly based on the idea that households desire access to credit, not cheap credit. Raising interest rates (or the cost of borrowing) does not reduce the demand for credit because access to credit is often more important for the borrowers than the cost of borrowing. In the context of limited donor resources, it is argued that sustainability is beneficial for both the client and the MFIs. For

[38] In contrast, the great majority of moneylenders in Asia charge nominal interest rates well over 5 percent per month (Robinson, 2001: 199-201). High interest rates are not exclusive of moneylenders in the developing world. According to a 2007 article in the New York Times, payday loan stores in the United States charge USD 15 to USD 22 per two weeks for every USD 100 borrowed, or the equivalent of up to 572 percent annual interest. In a payday loan store, a customer can borrow an amount in exchange for a check, postdated to the next payday, made out in the amount of the principal plus the corresponding fee (USD 15 to USD 22 per USD 100 borrowed, with a client typically borrowing a few hundred dollars). According to the same article, payday loan stores barely existed 15 years ago and now outnumber most fast-food franchises (Leland, 2007).

the MFIs because they are independent from donors, can access commercial capital and have the capability to deepen the financial market, i.e. to reach wider ranges of clients from different economic sectors. For the clients because of the long term survival of the institution and the subsequent continuous access to financial services;[39] because larger numbers of clients are reached; and because additional financial products are likely to be provided (e.g. savings). In addition, for both MFIs and clients, financial sustainability reduces the risk of MFIs being affected by donors changing the development assistance priorities or having to close or reduce operations if/when donor funds dry out.

Nevertheless, few MFIs worldwide are financially self-sufficient. There are over 10,000 MFIs operating in the world and most of them are quite small.[40] Morduch reports that "according to the estimation of some experts no more than 1 percent of NGO programs worldwide are currently financially sustainable – and perhaps another 5 percent of MFIs will ever cross the hurdle" (1999b:1587). In 2007, of the 200 microfinance institutions from 57 developing countries participating in the *MicroBanking Bulletin*, 142 were financially self-sufficient. However, this represents a notable increase from 2002, when there were only 62 self-sufficient microfinance institutions of the corresponding 147 participating institutions.[41] The figures of self-sufficient microfinance institutions are not homogeneous across developing countries or across regions; for example of the MFIs reporting to the *MicroBanking Bulletin* in 2007, less than 35 percent of the ones in Sub-Saharan Africa were classified as self-sufficient but more than 85 percent of MFIs in Eastern Europe and Central Asia or Latin America and the Caribbean were classified as self-sufficient.

[39] Note that clients of subsidy-dependent MFIs also depend on (indirect) continuous support from donors.
[40] The figure is often quoted in CGAP reports, but it has also been attributed to Shari Berenbach, director of the Calvert Foundation.
[41] MBB (14) 2007 and MBB (8) 2002: 25. The *MicroBanking Bulletin* (MBB) compares the performance of MFIs with their peers to establish industry benchmarks/performance standards as well as to enhance the transparency of financial reporting. The *Bulletin* forms peer groups based on three main indicators: region, scale of operations and target market. Note that the MBB 2007 figures seem to contradict Hashemi and Foose, who report more than 400 "sustainable institutions" reporting to the Microfinance Information eXchance (MIX) (2007:1). The MIX is a leading source for market data and is, in fact, the electronic host of the MBB as part of their information exchange mission. <http://www.mixmbb.org/en/index.html>. Note that microfinance institutions participating in the MBB are likely to follow stronger financial and accounting principles (as well as a commitment towards sustainability) than are other non-participating MFIs. As noted by Armendáriz de Aghion and Morduch (2005:232) "bear in mind that microlenders in the MicroBanking Bulleting data are a relatively impressive bunch, sustainability-wise…[…] Bangladesh's Grameen Bank, for example, is not included. In terms of financial management, the programs are thus skimmed from the cream of the global crop" (2005: 232).

Outreach, Impact and Social Performance: Are they synonyms?

The terms outreach, impact and social performance are complementary but distinct. However the terms are often confused in microfinance, and thus, the following sections will define them and highlight their complementarities as well as their differences.

Outreach

Meyer and Zeller defined outreach as the expansion of the financial frontier to people previously excluded from accessing banking services (2002:362). Von Pischke (1991) described the frontier between the formal and informal financial sectors where those outside the frontier do not have access to formal financial services.

In fact, the concept of outreach is twofold: depth of outreach and scale of outreach. Outreach is a measure of the scale of lending and savings operations in terms of number of clients (i.e. the number of active depositors and borrowers) and the depth with which an institution is able to reach the very poor and the hard-to-reach clients. As Ledgerwood notes, if depth of outreach is defined as providing financial services to those excluded from formal financial services, then "those sectors of society with little or no access to formal finance must be defined" (1999:225, as adapted from Paxton and Fruman, 1998). According to the same author, there are at least four categories of people who are consistently underserved by financial institutions: rural inhabitants, women, the poor and the uneducated (1999: 226). Note that these four groups are not mutually exclusive.

Nevertheless, within the microfinance literature the term outreach is often applied as a synonym of reaching the poor and thus used as shorthand for *poverty outreach,* and as such will be applied through this dissertation.

The depth of outreach is often measured with a proxy: the average loan size or the average loan size as a percentage of the GDP per capita. Alternatively, other proxies include the average first loan size or the average first loan size as a percentage of the GDP per capita. The underlying assumption is that only the poor would borrow small size loans. But these proxies are of limited use. As Ledgerwood highlights, "these proxy indicators can sometimes

be misleading because the loans are for different terms and uses and may not reflect the income level of the client" (1999:225). The proxies may in fact not reflect the level of poverty or the level of exclusion (however defined) of the clients.

Outreach will be discussed again briefly in the final section of this chapter in the context of trade-offs and synergies among the four concepts of financial sustainability, outreach, impact and social performance.

Impact

Meyer and Zeller defined impact as the benefits received by the poor (2002:362). Zeller, Lapenu and Greeley, define social impact as the change in welfare and quality of life (in all of its dimensions) among clients and non-clients (and the wider local, national and global community) due to the activities of an organization (2003:4-5). Both definitions hint to the fact that impact is, indeed, difficult to measure.

Zeller et al. (1997) have distinguish three pathways through which access to financial services potentially increase the income and food security of households and their individual members. The first pathway is income generation through expanded production. The second pathway focuses on consumption-smoothing by applying credit directly to finance urgent consumption. The third pathway focuses on the efficient management of asset portfolios or asset (dis-) investment strategies to smooth disposable income over time at sufficient food consumption levels.

In their literature review about the impact of microfinance on poverty reduction Morduch and Haley conclude that there is evidence substantiating a beneficial effect on increases in income and income smoothing/reduction in vulnerability (albeit with the caveat that "the quality of many studies could be improved" (2002:2)) but that there are fewer studies providing evidence to support a positive impact on health, nutritional status and increases to primary schooling attendance.

Sharma and Buchenrieder (2002) also reviewed the main impact studies on microfinance. The authors divided the studies into two main categories: "investment-led" and "insurance-

led" impact studies.[42] "Investment-led" impact studies compare outcomes for those households (or individuals) that have access to credit and those that do not. "Insurance-led" impact studies look at the benefits of credit when it serves as an insurance substitute, that is, to borrow during a crisis and repay when things are better so that they can better manage their investment portfolio. The authors highlight the attribution[43] and timing of benefits[44] problems in producing robust conclusions in the investment-led impact studies and summarize the empirical evidence of both types. The authors conclude that investment-led studies present mixed results on the impact of credit on various household outcomes while insurance-led studies show better evidence of consistent positive impact. Their review suggests that "the very poor may benefit from microfinance largely by smoothing their consumption through borrowing or improved management of their savings. Those just above or just below the poverty line may be able to use loans more effectively for productive purposes, which ultimately raise their income and asset base" (2002:6). As Zeller and Meyer highlight, this fact has clear policy implications, since "expanding financial services may improve welfare of the very poor but not necessarily lift them out of poverty because [of] their lack of access to markets, technology, education, and other factors that raise incomes by expanding their production frontier" (2002:6). The editors stress that the literature review by Sharma and Buchenrieder reveals two main gaps in impact assessments: assessing the effects of savings products on the poor (both the type of product and the amount of savings held by households) and differentiating between the concepts of access to credit versus actual credit use. This later point is important for microfinance because access to credit, even if there is not actual borrowing, may help to avoid risk-reducing, inefficient production practices such as mixed cropping, late planting and poor timing of input applications (2002: 371-372).[45]

[42] Investment-led studies cover the first pathway (income generating) and insurance-led studies cover the second and third pathways (consumption-smoothing and asset management) of the conceptual framework detailed above.

[43] Controlling for other factors that simultaneously affect household welfare so that measured households' outcomes can be attributed to credit and to credit alone. Although, as Sharma and Buchenrieder state, the heart of the problems in econometric impact studies is that what is not observable and quantifiable cannot be controlled (2002:225).

[44] The costs are easy to measure but the benefits or yields accrue over time – this information is not captured in snap-shot household surveys which are the most commonly used (2002:224).

[45] The authors also provide a notable exception in Diagne's study in Malawi within the same volume. The study in Malawi differentiates between access to credit (measured as the credit limit) and participation in the credit market (measured by the actual amount borrowed) (Meyer and Zeller, 2002: 371-372).

Social Performance

The social performance of an organization (whether a private for-profit firm, cooperative or NGO) comprises the relations of the organization with its clients and with other stakeholders. In the case of an MFI, the measurement of social performance involves investigating its structure (i.e. mission, ownership, management principles, relation to and care for its staff) and its conduct in the market and community (services, products, market behavior, other relations with clients and other stakeholders, including community and social/political organizations). Social performance is not the same as social impact. Social impact has been defined previously as the change in welfare and quality of life (in all of its dimensions) among clients and non-clients (and the wider local, national and global community) due to the activities of an organization. Social (and economic) performance thus precedes social (and economic) impact (Zeller, Lapenu and Greeley, 2003:4-5).

In the context of microfinance institutions, the meaning of social performance, poverty outreach and social impact are often confused. In an attempt to differentiate among these concepts, the 2003 literature review and synthesis of the work of CERISE's Social Performance Initiative[46] is a useful starting point. In their efforts towards defining social performance, the initiative produced the following table to explain these differences and outline the main dimensions of social performance:

Table II-2: Economic and Social Performance and Impact for MFIs

		Core social issues	Economic/financial issues
Global performance institution	**Performance monitoring (intentions and actions of the MFI)**	▪ Who are the clients? Poverty outreach ▪ Services and products targeted to the excluded population ▪ Empowerment: participation in MFI decision making; "voice" for those being served to avoid "mission drift" ▪ Social responsibility of the MFI	▪ Portfolio quality ▪ Efficacy and productivity ▪ Financial management ▪ Profitability ▪ Quality and diversity of the financial services offered
	Impact assessment (outcomes)	▪ Employment creation for the excluded population ▪ Empowerment : position of individuals in their family and communities; social capital building ▪ Health improvement ▪ Child education, etc…	▪ Change in income and expenses ▪ Change in assets and living standard ▪ Food security ▪ Employment creation at community level

Source: Lapenu and Zeller (2003:8)

[46] The Social Performance Indicators Initiative (SPI) was launched in June 2002, supported by Argidius Foundation, administered by CERISE and coordinated by CGAP. Further information on this initiative is available later on this section.

As noted by Lapenu and Zeller and shown in Table II-2, social performance cannot be reduced to poverty outreach as poverty outreach is only one of the four dimensions of social performance (see highlighted line in grey in the white first quadrant) while impact assessment is a different concept that covers both social and economic/financial issues (see purple quadrants).

According to the authors, the distinction between performance monitoring and impact assessment does not mean that the social dimensions of impact are not important, but rather that they cannot be routinely and reliably measured through simple indicators (2003:8). Zeller, Lapenu and Greeley (2003) further define these four main dimensions of social performance according to their proposed framework is summarized in Figure II-4 below.

Figure II-4: Main Dimensions of Social Performance

DIMENSION 1:
Outreach to the poor and excluded

1. How much weight does the objective of financial sustainability / outreach to the poor or excluded/ positive impact on income / education / social status **carry for the MFI? Mission drift:** How does the MFI management keep to the social mission?
2. What is the geographic and socio-economic focus in client-group targeting? (urban; rural; women; workers with insecure status; illiterate)
3. Is there a tool for targeting?
4. What is the size of transactions? (distribution of loans as % of GDP pc; distribution of deposits as % of GDP pc; minimum and maximum sizes)
5. Is physical collateral required?

DIMENSION 2:
Adaptation of the services and products to the target clients

6. What is the range of services? (type of loan products; type of savings products; type of insurance products; flexibility of repayment or deposits)
7. What is the quality of services? (travel distance in rural areas; loan delivery; market surveys; client drop-outs)
8. Are non-financial services accessible to the clients? (directly or through partnerships)
9. Participation (involve clients in decisions)

DIMENSION 3:
Improving social and political capital of clients[47] / Empowerment

10. Transparency (loan statement differentiates between the amount of the principal and the amount of the interests / fees, clients receive written statements on transactions, access to annual accounts)
11. Client representatives in consultation, decision making, control of the institution (meeting frequency; system of rotation; system of training; % of women among client representatives compared to % of women among all clients)
12. Empowerment (strengthen the social cohesion of the local community; voice; leadership; MFI influence in government policies)

DIMENSION 4:
Social Responsibility of the institution

13. Human resources policy (salary; bonuses; training; participation in decision making; health coverage; staff turnover)
14. Social responsibility towards the clients (socio-economic studies; change services due to negative impact; insurance; coping mechanisms for natural disasters)
15. Social responsibility towards the local community (respect for local culture and values, MFI assisted the local community through financial support for community projects)

Source: Adapted from Zeller, Lapenu and Greeley (2003:8-11)

[47] Social capital refers to those features of social organizations such as networks, norms, values, and social trust that facilitates coordination and cooperation and enables people to achieve goals for mutual benefit. The term political capital has also been used to cover other non-material factors in poverty not contained in the term social capital. Social capital is understood throughout this dissertation in terms of Putnam's work which focuses on the stocks of 'reciprocal networks of trust and norms embedded in the social organization of communities.'

Thus, CERISE's definition of social performance, excluded the concept of impact among the main dimensions of study. Zeller, Lapenu and Greeley (2003) further proposed to measure social performance through the "principles, the actions and the corrective measures implemented by the MFI" (2003: 5). In fact, one the causes of the increasing interest in Social Performance may be indeed linked precisely to the impossibility of regularly and easily assessing the social and economic impact in the lives of clients with access to microfinance services (and attributing this impact exclusively to access or use of microfinance services). This CERISE's concept of social performance fills in the gap by pragmatically concentrating in *what can be measured*; it focuses on the areas within the control of the microfinance institution and on the entire process by which impact is created. Social impact cannot be easily assessed because impact assessments require very specific and often complex measuring methods and is extremely time/cost intensive. However, an evaluator could look into the main objectives of a particular MFI and what systems are put in place within in order to achieve these desired outputs and outcomes. In this regard, social performance becomes the counterpart of a typical financial performance assessment (i.e. white quadrant versus green quadrant in Table II-2): just as external auditors can verify the authenticity of financial transactions, external social evaluators should be able to assess social performance in a similar way using simple indicators that are easily verifiable. In this manner, assessing impact becomes a tool for long-term policy analysis while social and financial performance become a routine assessment of the business strategies of the MFI.

The most recent development within the overall microfinance industry may well be this emphasis on social performance but it is still a debated issue: not all actors agree on its importance[48] or in how to best measure it. In an attempt to bridge this gap, in March 2005, leaders from various social performance initiatives in the microfinance industry were brought together in to the *Social Performance Task Force.* The objective was to come to an agreement on a common social performance framework and to develop an action plan to move social performance forward.[49] Their first achievement was to agree on a definition: Social Performance has been defined as "the effective translation of an institution's social mission into practice in line with accepted social values that relate to serving larger numbers

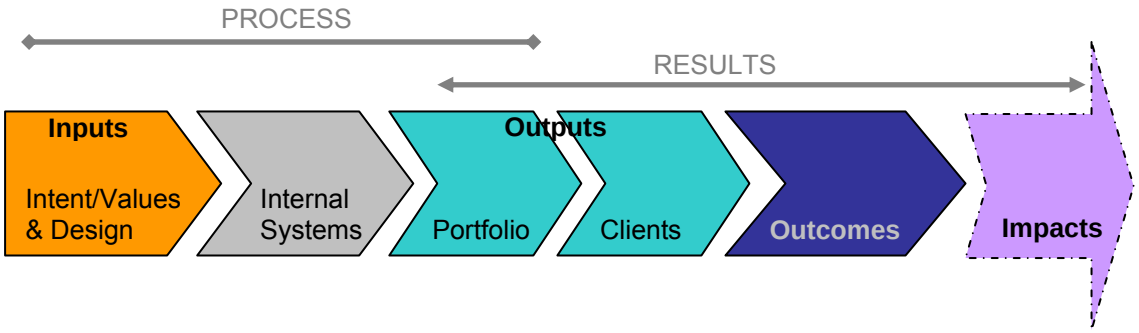
[48] See Jacquand (2005) for an opposite view.

[49] CGAP, the Argidius Foundation, and the Ford Foundation support the Social Performance Task Force (SP Task Force) along with the CGAP Donor Working Group on Social Performance. Leaders participating in the Social Performance Task Force include donors; microfinance / regional networks; social investors; raters and consulting firms, action-research programs as well as microfinance operators worldwide, including AMK.

of poor and excluded people; improving the quality and appropriateness of financial services; creating benefits for clients; and improving social responsibility of an MFI." Thus, social performance has many different dimensions and refers to actions, corrective measures and outcomes, seeing impact as just one element of social performance. Indeed, while traditional evaluations have focused on end results and impact, this new agreed definition on social performance looks at the entire process by which impact is created. Therefore, this new definition brings back the concept of impact to social performance (i.e. the equivalent of adding the white quadrant and the purple quadrants from the previous Table II-2) by concentrating on those requirements deemed necessary for achieving social impact.

The main underlying hypothesis is that it is not possible to have good social impact without good social performance, and thus, good social performance is a precursor –albeit not a guarantee- of good social impact. In other words, good social performance is a necessary but not sufficient condition for social impact. This can also be seen graphically as a continuum in the social impact casual chain, which identifies five main elements: inputs, internal processes, outputs, outcomes and impacts. In the case of microfinance, the inputs are further detailed as the intent, values and design of the institution and the outputs are further divided between outputs from portfolio information and outputs from clients.

Figure II-5: Casual Chain: Social Performace and Social Impact



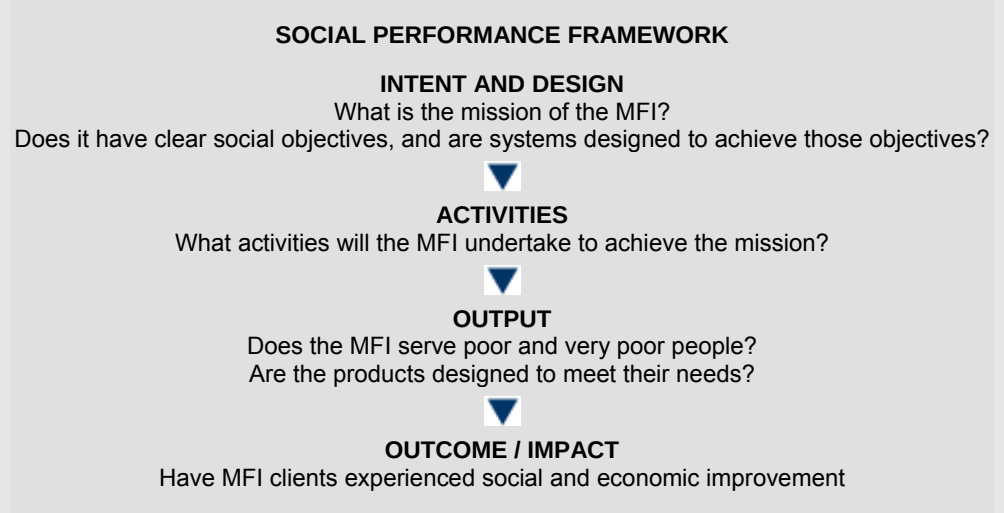
Adapted from Hashemi et al. (2007: 4) and Sinha (drafts on M-CRIL social ratings).

As currently understood, social performance includes not only an evaluation of end results (i.e. success in effecting positive changes in the lives of clients) but also the analysis of the declared *objectives* of institutions, the *effectiveness* of their *systems* and *services* in meeting these objectives as well as their *related outputs*, such as increasing depth of outreach. In other words, social performance has been defined as both the results achieved (in terms of

reaching clients, meeting client needs and change), and the process by which these are created (the actions and corrective measures that are taken to bring about those outcomes).

Figure II-6 below shows the common framework agreed upon which covers the dimensions of intent and design, activities, outputs and outcomes or impact.[50]

Figure II-6: Social Performance Common Framework



Source: Social Performance Resource Center website
http://www.microfinancegateway.com/resource_centers/socialperformance/definition

Precisely because social performance is about many different dimensions, different social performance initiatives have chosen to assess social performance by focusing on specific dimensions and not necessarily on the whole. Just as CERISE focused on intent, activities and output (but excluded outcomes and impact), initiatives financed by CGAP and Ford Foundation have assessed social performance including the concept of outcomes or impact.

Two additional concepts are commonly linked to debates of social performance: the double bottom line and the triple bottom line. The concept of "Double Bottom Line" refers to microfinance's dual objectives of financial return and positive social impact and thus attempts to measure social and financial performance, while the term "Triple Bottom Line"

[50] Note that these definitions are equivalent to the commonly applied concepts of outputs and outcomes applied by Logframes. "Outputs" are the results of the completed activities (which are within the control of management and use the inputs provided). The results of these activities should lead to the achievement of the expected impact and thus, "outcome or impact" is the intended effect on the target population. Note that "inputs" are the resources (money, materials or staff) needed to carry out the activities and that the "wider objective" (which is the aim or purpose of the work) within the logic of a logframe would be the equivalent to the vision of the MFI.

adds the concept of environmental sustainability and attempts to measure social, environmental and financial aspects of performance. The introduction of the concept of environmental sustainability into the assessment of MFIs is a contested issue within the industry. Most practitioners agree that the enterprises of microfinance clients have an environmental impact (positive or negative); what has not been agreed is whether MFIs are equally responsible for the (negative) impacts of microenterprises on the environment regardless of the size of the loan and the nature of the economic activity in which it becomes invested and whether it is ethically correct for MFIs to deny loans to microentrepreneur with little or no alternative means of subsistence based on environmental considerations. The Triple Bottom Line is arguably linked to the efforts of Triodos Bank in incorporating microfinance into the Global Reporting Initiative (GRI). While both institutions are based in The Netherlands, Triodos Bank is one of the pioneering funders of microfinance and the GRI aims at developing and disseminating global standards in sustainability reporting. [51]

In addition to the dimensions covered, current or past initiatives on social performance can be categorized into two different but complementary areas of focus: Social Performance Assessment and Social Performance Management. According to the Social Performance Resource Center common website[52] while social performance *assessment* is "about evaluating the extent to which institutions meet their social objectives," social performance *management* is "about making an organization's social mission a reality." In practice, though, the division lines between both are not clear-cut and some approaches or initiatives are compatible while others are complementary. Table II-3 summarizes the most well known initiatives on social performance, categorizing them by their main focus, their objectives and the corresponding tools or systems proposed. Some of these tools will be reviewed in detail in Chapter III when discussing the MFI experience in applying poverty measures.

[51] Triodos International Fund Management manages three microfinance funds: Triodos-Doen, Hivos-Triodos Fund and Triodos Fair Share Fund. These funds offer (syndicated) loans and equity to MFIs as well as trade finance to producers/organisations with Fair Trade and/or organic certification. GRI is an independent institution governed by multi-stakeholders. Further information is available at www.globalreporting.org.

[52] The Social Performance Resource Center was created jointly by CGAP and the Social Performance Task Force and is seeks to promote a social performance bottom line in microfinance. The site provides information on social performance tools, Social Performance Task Force activities, and highlights projects, research, and publications available on social performance management and assessment. The site is hosted by the microfinance gateway at: http://www.microfinancegateway.com/resource_centers/socialperformance.

Table II-3: Conceptualizing Social Performance (Review of Types and Tools)

	SOCIAL PERFORMANCE ASSESSMENT (evaluating the extent to which institutions meet their social objectives)			**SOCIAL PERFORMANCE MANAGEMENT** (making an organization's social mission a reality)
Primary Focus	**TOOLS to Assess Institutional Processes**	**TOOLS to Assess Client Conditions.**	**TOOLS to Rate Social Performance**	**Internal SYSTEMS and ACTION RESEARCH Initiatives**
Objectives or Concerns	Help institutions evaluate their intentions, systems and actions to determine whether they have the capacity to attain their social objectives.	Determine who are being reached and if client conditions are improving.	Complement financial ratings (some focus only on internal processes while others also consider client-level indicators).	Three main concerns: 1) managing for results, 2) understanding client needs, 3) reporting to external stakeholders.
Tools / Systems / Action Research Initiatives	• CERISE: Social Performance Indicators Initiative (SPII) Tool[53] • USAID –AMAP-Social Performance Assessment Tool • CGAP Poverty Audit.	• ACCION SOCIAL • CGAP- Grameen-Ford Progress Out of Poverty Index • CGAP Poverty Assessment Tool • USAID-IRIS Poverty Assessment Tools.[54]	Rely on information provided by MFI: • Planet Rating • Microfinanza Social Rating (slim version) Conduct direct client surveys: • M-CRIL Social Rating Tool[55] • Microfinanza Social Rating Survey (fat version).	• Action research program of the Imp-Act Consortium[56] • Action research program of the Asian Development Bank Institute[57] • FINCA Client Relationship Management (CRM) System. • "Progress out of poverty" initiative from the Grameen Foundation • The Action research of the Micro Finance Centre[58] • Client Impact Monitorin System of Opportunity International.

Adapted from Social Performance Resource Center website and Hashemi and Foose (2007:9).
Further information and links available at
http://microfinancegateway.com/resource_centers/socialperformance/article/35397

[53] CERISE members include: CIDR (International Centre for Development and Research); CIRAD (Centre for International Cooperation in Agronomic Research for Development); GRET (Group for Research and Technical Exchange); IRAM (Institute for Research and the Application of Development Methods); and IRC, (Institute for Tropical and Subtropical Agriculture) (all based in France). The initiative is also supported by Argidius Foundation and SDC - Swiss cooperation (Switzerland).

[54] USAID-IRIS PAT are available for: Albania; Bangladesh; Colombia; Ghana; Guatemala; Haiti; India; Indonesia; Jamaica; Kazakhstan; Madagascar; Mexico; Peru; Philippines; Tajikistan; Uganda; and Vietnam (www.povertytools.org/USAID_Tools/USAID_Tools.htm)

[55] M-CRIL and EDA Rural Systems (India) jointly created the social rating tool. On February 2007, MicroRate and M-CRIL (the two largest microfinance rating agencies) announced the creation of a global alliance under the name of MicroRating International (MRI).

[56] Imp-Act Consortium members are: CARD MRI (the Philippines); EDA Rural Systems (India); Freedom from Hunger (USA); IDEAS (USA); Institute of Development Studies (UK); Microfinance Centre (MFC, Poland); and Microfinance Council of the Philippines (MCPI).

[57] Asian Development Bank Institute is based in Japan and is a subsidiary of the Asia Development Bank (ADB).

[58] Implemented by MicroFinanceCentre (Poland) in collaboration with MicroSave, Imp-Act, and Microfinance Opportunities and financed by the Ford Foundation.

Social performance assessment is about evaluating the extent to which institutions meet their social objectives. In turn, these social objectives can include: serving increasing numbers of poor and excluded people sustainably; improving the quality and appropriateness of financial services for target clients; creating economic and social benefits for clients and reducing their vulnerability; improving the social responsibility of financial institutions to their clients, their employees and the community they serve. The analysis of social performance includes the declared social objectives of institutions, the effectiveness of their systems and services in meeting these objectives, related outputs (for example, reaching larger numbers of very poor households) and indeed success in effecting positive changes in the lives of clients. As discussed previously, different social performance initiatives focus on different steps in this process. Some focus on the institutional process and internal systems with the objective of helping institutions evaluate their intentions, systems and actions to determine whether they have the capacity to attain their social objectives. Others assess social performance at the client level in order to determine who are being reached and if client conditions are improving. Some are holistic and encompass both internal institutional level as well as client level indicators. In addition, several rating agencies have developed tools to complement their financial ratings. In turn, some of these focus only on internal processes while others consider both client-level indicators and internal processes

Social performance management is about making an organization's social mission a reality and it is generally driven by three concerns: managing for results, understanding client needs, and reporting to external stakeholders. The key reference in social performance management is the global action-research Imp-Act Programme. The Imp-Act Programme was founded by the Ford Foundation Development Finance Affinity Group and has worked with more than 30 organizations across the world to develop a framework for promoting Social Performance Management (SPM) as a core business function. According to the Imp-Act Programme, in order to create and maintain an effective social performance management system the MFI must 1) set clear social goals and objectives, 2) collect information to monitor progress towards these objectives and 3) use social performance information to improve operational and strategic decision-making. The Imp-Act framework combines regular monitoring of client status, analysis and communication of findings, and corresponding adjustments to products or service delivery that will improve the MFI's program. To date Imp-Act has

created a step-by-step guide and advocates for providing external stakeholders with reports on internally-generated social performance information.[59]

Therefore, as opposed to financial or auditing standards, there is a lack of clear, industry-wide accepted framework for social performance reporting and the distinctions among all of these initiatives and approaches are difficult to evaluate. Some initiatives have been donor-driven, others haven been MFI-driven. Yet, some of the donor-driven tools or initiatives are more prone to replication (with the corresponding tweaks) than the MFI-specific tools simply because donor-driven initiatives have been tested in other contexts and fine-tuned for geographical and methodological variations. Some have offered MFIs solid tools to implement while others have retained a theoretical focus. Some have pushed donors and practitioners to think beyond how to measure social performance into thinking how best to approach incorporating social performance into decision-making. Some see a trade-off between social and financial performance while others see synergies. Yet, some strive to balance both, while some try to push for a social dimension to counterbalance a (perceived) financially oriented MFI (and vice versa). Some concentrate on including social aspects into decision-making at the management level, others incorporate also governance and the role of the Board of Directors in balancing the double bottom line of financial and social goals.

Also, all these tools, systems, or action research initiatives are dogmatic on what "good" social performance means: some are explicit about their preferences and some show their ideal archetype only tacitly. Indeed, any performance assessment system is based on a particular value system (i.e. what does it mean by "good performance" and where are its limits?) and the crucial question is whether frameworks rely on values that all the parties agree upon. At the same time, microfinance institutions have different objectives (i.e. the mission and the vision of an organization) and as such, assessments need to measure performance precisely against those particular objectives. This may well be the crux of the matter. While most people would agree on universal values such as eradicating poverty,

[59] The guide includes the following 6 key questions that an MFI must initially think about before implementing an Social Performance Management system:
1. What are your social performance objectives and how do you plan to achieve them?
2. Who uses your programme's products and services? Who does your programme exclude?
3. Why and when do clients leave the programme or fail to fully utilize the available services?
4. What is the effect of your programme on current clients?
5. How will you use information about social performance to improve your services?
6. How do you maintain and improve the quality of the systems you use to answer these questions?
Further information at www.imp-act.org.

equality or contributing positively to society at large; not everybody would agree in exactly how this should come about. Further, the objectives of the microfinance institutions may not focus on these universal values with equal degree (e.g. some MFIs may focus on equality while some MFIs may focus on poverty reduction). The fact of the matter is that, given appropriate minimum levels in each dimension, there is no *a priori* "good" or "bad" social performance of an institution. It is each institution and its Board of Directors that will establish the weight that each of these dimensions should have in its overall social performance as well as the balance between social and financial performance.

As experts usually point out, it took the microfinance industry over a decade to come up with an agreed set of financial indicators to measure the financial performance of an MFI.[60] It will likely take at least as long to come up with the equivalent set of indicators to overlook the social sphere. In fact, the recent attempts of the Social Performance Task Force to develop a "common format for social performance reporting" has produced "a much larger set of indicators than preferred" (Hashemi and Foose, 2007:10). The next decade is likely to bring new perspectives into this topic as the experience accumulates and MFIs experiment creating efficient ways to assess social performance and to incorporate these conclusions into decision-making, both at the management level of day to day operations and at the board level of strategic decisions.

Trade-offs and Synergies

The trend towards sustainability gave rise to a debate within MFIs on whether there is a trade-off between sustainability and outreach. Taking the size of the loan as a proxy of

[60] A decade is a conservative estimate of how long it took to arrive at a consensus of how to measure financial performance within MFIs. ACCION International's CAMEL system for financial performance assessment for MFIs was first designed in 1992. Up to 2003, there was no universally understood set of financial performance indicators in microfinance. In fact, a "Roundtable Group" was created precisely to identify the names and the definitions of 20 financial performance indicators, and even when the results were published in 2003 the foreword reads that "It was not the intention of the group to select the "best" indicators or to try to interpret them, just to discuss names and definitions" (Inter-American Development Bank – MicroRate, 2003). This Roundtable group included the Inter-American Development Bank (IDB), the Consultative Group to Assist the Poor (CGAP), the United States Agency for International Development (USAID) and rating agencies such as MicroRate (the precursor of the group), M-CRIL and Planet Rating. Also note that the *MicroBanking Bulletin* (MBB, which originated in the Microfinance Program at the Economics Institute, Boulder, CO) became operational as the benchmarking source for the microfinance industry in 1997, while specialized microfinance rating companies were founded also at the end of the 1990s.

poverty levels (under the assumption that only the poor will want a small loan) those MFIs which are sustainable (or close to being financially sustainable) tend to have wealthier clients (that is, just above the poverty line) with larger loan sizes, while the operators with smaller loans tend to serve the poorest. Studies have shown that there is, indeed, a positive correlation between financial sustainability and reaching many poor people (Gulli, 1998: 25-28). The main argument is that sustainable programs can achieve enough scale to reach larger numbers of clients and thus make the greatest dent in poverty.

The depth of outreach is yet another matter. While empirical evidence demonstrates overwhelmingly that, indeed, the poor are being reached by microcredit programs, not all the poor are equally poor and this empirical evidence also demonstrates that most of the customers of MFIs are clustered around the poverty line while very few of them are the poorest of the poor. The results of the few empirical studies that have assessed the impact of microcredit schemes on the 'poorest of the poor' seem to suggest that such schemes actually benefit the richest segments of the poor (Roth, 1997). Empirical work by Hulme et al. (1996) indicates that the wealthier segments of the target groups (i.e. the poor) seem to benefit the most. Cohen and Sebstad (2000), in a study of different microfinance programs, showed that their customers tend to be clustered around the poverty line, being predominately "moderately poor" or "vulnerable non-poor" and found virtually no "destitute" households in the sample examined.[61] Navajas et al. (2000) study five MFIs in Bolivia and conclude that they reach not the poorest of the poor but rather those just above and just below the poverty line. Wollni (2001) and later Zeller, Wollni, and Abu Shaban (2002) confirm the case for the Mexican MFI Compartamos which reaches a larger share of wealthier households (while simultaneously reaching 25 percent of the poorest).[62] Matin (2004) in his study of BRAC in Bangladesh further corroborates the general consensus that the participation of the very poor is much lower than other poverty groups (2004:7).[63]

[61] While the "very poor" were those in the bottom 10th percentile below the poverty line within a country, the "moderately poor" were the top 50th percentile of households below the poverty line. The "vulnerable non-poor" were households above the poverty line but vulnerable to slipping back into poverty.
[62] Note that Compartamos does not explicitly target the poorest and instead focuses on increasing breadth of outreach and financial sustainability. Thus this result is coherent with its focus on sustainability and growth.
[63] Matin et al. (1999) further argue that improvements in product design and delivery methods (i.e. the supply factors) might alter demand in ways that create deeper outreach and further stress the need to research into the financial behavior and preferences of the poor. The same authors also argue that financial services for the poor are essentially a matter of helping the poor turn their savings into sums large enough to satisfy a wide range of business, consumption, personal, social and asset-building needs (1999:3 and 26).

As was discussed in Torres (2003), the fact that microcredit programs are not necessarily reaching the poorest of the poor is, actually, a great relief. Loans offered to those too poor to borrow and who lack the necessary repayment capacity can actually harm the poor, with the unintended result of "locking some borrowers who are both very poor and very unlucky into a deepening spiral of debt and dependency" (Hulme et al., 1996: 205). This is because an oversized debt level might force borrowers to sell their assets (including productive ones) to fulfill their financial obligations and further impoverish them. A completely different matter is whether microfinance (as opposed to microcredit) does not serve the poorest of the poor: while credit is not indicated for the destitute, savings or insurance services are not only appropriate but also highly demanded by them.[64]

Indeed, most microfinance programs lie in between two main approaches: the poverty approach and the self-sustainability approach. The poverty approach targets very poor clients who are very costly to serve and measures success as how well it fulfills the needs of the poorest in the short term. The self-sustainability approach targets less-poor clients on the fringes of the formal financial system and measures success by how well it expands the frontier of the mainstream economy in the long term (Von Pischke, 1991).[65] In the poverty approach, donations cover the shortfall between revenue from clients and the cost of supply; in the self-sustainability approach, donations cover start-up costs and fund experiments meant to find innovations that reduce the cost of supply in order that revenue from clients can cover costs in the long term (Schreiner, 2002).

Zeller and Meyer (2002) note that there are also potential synergies among financial sustainability, outreach to the poor and impact. Financial sustainability can positively affect outreach on two fronts: first, if clients perceive it as an indicator of the MFI long term presence and permanence, thus influencing their decision on whether it is worthwhile in the long run to become clients (either for credit or for saving services). Secondly, if striving for financial sustainability forces the MFI to be sensitive to clients' demand and therefore

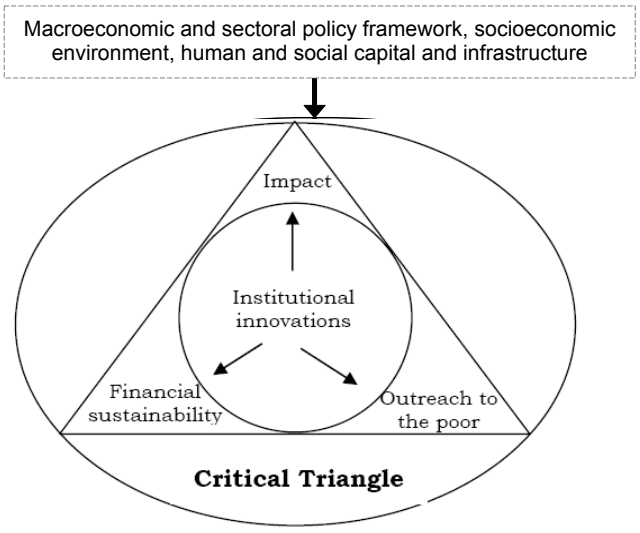
[64] On the contrary, Armendáriz de Aghion and Morduch "strongly agree that access to financial services will not be the answer for everyone, but see neither systematic evidence nor theory that allows us to conclude that saving is more appropriate than credit for the poorest who seek financial services" (2005: 291). Morduch and Haley state that "the literature confirms that most microfinance programs do not serve the poorest. However, there are some institutions that do, and the evidence indicates that the poorest can definitely benefit from microfinance in terms of increased incomes, and reduced vulnerability" (2002: 6).

[65] 'Financial frontier' is a term coined to describe the conceptual point where formal financial transactions end and informal transactions begin.

improve products, operations and outreach. In turn, better financial products will generate greater benefits for the clients and so, financial sustainability can positively affect (indirectly) impact as well (2002:7). This may well be the new challenge for financially sustainable MFIs: to recover those clients that were thought to be too poor to be helped by their services. As Matin et al. summarize: "the first 'microfinance revolution' has shown that the 'poor are bankable,' the second revolution is faced with the challenge of showing that it is possible to offer a set of financial services to the poor that meet their livelihood needs" (1999:29).

The synergies and trade-offs can be assessed through the interaction of innovations at the institutional level and improvements in the policy environment. In the figure of the triangle of microfinance developed by Zeller and Meyer (Figure II-6) the inner circle represents institutional innovations and the outer circle represents the environment. Institutional innovations may include cost-efficient information systems that contribute to improving financial sustainability, designing demand-driven financial products for the poor to improve impact or introducing lending methodologies that attract a particular segment of poorer clients in order to improve outreach. The policy environment include the external socioeconomic environment and the macroeconomic and sectoral policies that affect (directly or indirectly) the performance of MFIs. Thus, the overall performance of financial institutions requires innovations at the institutional level (the inner circle) as well as improvements in the policy environment (the outer circle) (2002:7).

Figure II-7: Critical Triangle of Microfinance



Source: Zeller and Meyer, (eds.) (2002: 6) and Zeller (2003; 37)

Meyer and Zeller argue that the lack of rigorous techniques for measuring depth of outreach so that they provide consistent information, results in very limited quantitative knowledge about the trade-offs between outreach and financial sustainability - and that impact analysis has even more limitations (2002:376). Indeed, if there is little consensus on the techniques and result of poverty outreach studies, the lion's share of the debate on trade-offs within the three main objectives in microfinance stems from the lack of robust and rigorous impact studies. Jonathan Morduch has stated that "the boldest claim for microfinance –that it can single-handedly eliminate a large share of world poverty- outpaces, by a long distance, the evidence accumulated to date" (Bruck, 2006). Meyer and Zeller also affirm that MFI field operations have far surpassed the research capacity to analyze them, so excitement about the use of microfinance for poverty alleviation is not backed up with sound facts derived from rigorous research (2002: 376). Armendáriz de Aghion and Morduch further confirm this lack of rigorous studies, stating that "there is no study yet that has achieved wide consensus as to its reliability; and this reflects the inherent difficulty in evaluating programs in which participation is voluntary and different customers use the services with varying degrees of intensity" (2005: 222).

Meyer and Zeller argue that better measurement is essential for improving our understanding of the trade-offs and synergies among the three objectives of the triangle of microfinance (2002:376). Armendáriz de Aghion and Morduch further argue that even if a "perfect" impact evaluation were to be available that shows a positive net impact, this does not necessarily mean that the program is a good candidate for support. Cost-effectiveness matters too and microfinance should be judged against the costs and benefits of alternative approaches, including other ways of doing microfinance (2005:224). The literature review of Sharma and Buchenrieder on impact assessment also concludes that the challenge is to reduce the costs of providing financial services to the poor and that whatever the current size of impact, further improvement in the benefit per dollar invested depends on the cost-saving innovations. Simultaneously, the authors argue, the impact studies themselves must improve in order to make more accurate assessments of benefits and that only through cycles of innovation, experimentation and evaluation can lasting institutions be established that alleviate the financial constraints faced by the poor (2002:237).

In fact, the recent focus on social performance in microfinance may be due precisely to the need of focusing on synergies as opposed to trade-offs. As argued by Hashemi and Foose,

“the push for a double bottom line […] allows to shift energies away from a zero-sum tradeoff between poverty and sustainability and move toward understanding how these two complement each other so that both financial and social performance can be improved” (2007:10).

Chapter III – MEASUREMENT OF POVERTY AND VULNERABILITY

Chapter III covers a brief summary of the conceptualization of poverty, the definition of vulnerability (to poverty), and the corresponding measurement tools over the last decades dividing the conceptual framework into one-dimensional and multidimensional measures of poverty. The one- dimensional tools are further divided into monetary and non-monetary and multidimensional tools are further divided onto participatory and indicator-based methodologies. At the end of each of the main two categories, the MFI experience to date is presented. The literature review completes with the most recent additions to the debate: the concept of subjective measures of welfare and its corresponding tools and the initial underpinnings of how to measure vulnerability to poverty. To conclude, the last section of chapter specifies the reasons behind the choice of the tools selected to measure poverty in this dissertation: the relative poverty tool based on Principal Component Analysis (PCA) and the absolute poverty tool based on food expenditure per capita.

Conceptualizing Poverty and Vulnerability to Poverty

The complexity of measuring poverty is directly related to the fact that there is no universal agreement of *what* is poverty. Terms often used to describe poverty include: income or consumption poverty; lack of basic needs; human (under) development; social exclusion; ill-being; (lack of) capability; vulnerability or livelihood unsustainability (Maxwell, 1999).

Of the myriad of typologies applied to poverty, this dissertation will structure the theoretical framework of poverty measurements along two basic categories:

- Whether the measure is absolute or relative, i.e. whether it is defined in absolute terms and thus comparable across the board or measured against a specific group of people and thus it is only meaningful to compare precisely against that sample or group of the population.
- Whether the measure relates to one dimension only or responds to a wider conceptualization of poverty. Other dimensions that are relevant in the different measures of poverty include whether people themselves are given the chance to define poverty or wellbeing as well as the concepts of vulnerability; livelihoods; capabilities;

gender; social exclusion; powerlessness and impact of choice and freedom; asset management; wellbeing vs. poverty; and the like.

The distinction between relative and absolute measures of poverty is relevant because some MFIs may include urban or better-off in their areas of operations while other MFIs deliberately select very poor areas or areas below average in their geographical coverage. As Zeller et al. (2001) and Henry et al. (2003) note, if the relative poverty assessment is conducted entirely in poor communities / locations, clients may be rated as less poor compared with the general population *of that locality*, even though they may in fact be poor when compared with the national population. As such, relative poverty measures may penalize those MFIs that operate in poorer areas or in areas where poverty is more widespread (MkNelly and Dunford, 2002).

One-dimensional measures of poverty can be monetary but also non-monetary. Multidimensional measures of poverty usually include a combination of monetary and non-monetary indicators. The following sections will deal with the main measuring tools in turn, preceded by a brief overview of the evolution of poverty and the metrics used in the last fifty years.

Developing Concepts of Poverty: 1960s to the present

Both Sumner (2007) and Maxwell (1999) provide brief summaries of poverty and their corresponding measuring tools: up to the 1960s, poverty was economically determined and measured by macroeconomic indicators such as growth in income / GDP per capita. Seers (1969) in the article 'The Meaning of Development' expanded the meaning into 'basic needs,' which included not only income but also the physical necessities for a basic standard of living such as food, shelter, and public goods (ILO 1976, 1977; Streeten 1984). Simultaneously, during the 1970s, the United Nations Research Institute for Social Development (UNRISD) introduced the 'levels of living' indicators, the work of Morris (1979) and the foundations for Sen's and later UNDP's 'Human Development' indicators. The work of Chambers (1983) on non-monetary poverty (in particular isolation and disempowerment) shifted the debate towards the concept of participation. During the 1980s

and 1990s Amartya Sen argued that well-being was 'the process of enlarging people's choices' and enlarged wellbeing as "capabilities". During the 1990s, the UNDP's annual Human Development Report, inspired by Sen's work, argued that well-being was 'the process of enlarging people's choices' and defined poverty as "the denial of opportunities and choices…. to lead a long healthy, creative life and enjoy a decent standard of living, freedom, dignity, self-esteem and the respect of others…" (UNDP, HDR 1997). The 2000/1 World Development Report on Poverty and Development confirmed the centrality of well-being, by defining poverty as "pronounced deprivation in well-being." The report accepted a multi-faceted model of well-being and proposed a strategy for attacking poverty in three ways: promoting opportunity, facilitating empowerment, and enhancing security.[66] Also, *Voices of the Poor: Can Anyone Hear Us?* (Narayan et al., 2000a)[67] focused on capturing the local experiences of poverty, stressing the participatory poverty assessments while identifying risk and vulnerability as aspects of poverty. In turn, vulnerability frameworks identified assets (including social capital) as buffers of risks and new lines of work were developed along copying strategies. Participatory Poverty Assessments (PPAs) also emerged to address the limitations of income-only measures. New layers of complexity were added with the inclusion of livelihoods and gender analysis.[68] Later on, the combination of qualitative and quantitative methodologies (Qual-Quant or Q-Squared) was advocated.[69] The current Millennium Development Goals (MDGs) were approved by 189 member states of the United Nations in September 2000 and stand at the end of this continuum. The signatory governments pledged to reduce extreme poverty and hunger by half in poor countries by 2015 and assigned targets and indicators to eight main goals as well as to monitor if progress was made or missed.[70] Table III-1 below provides a summary of the main definitions and measurements of poverty in the last 50 years.

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[66] The World Development Report of 1990 had defined poverty mainly in terms of income ("the inability to attain a minimal standard of living") (Maxwell, 2001).

[67] Also known as "*Consultations with the Poor*" or "*Voices of the Poor;*" consists of three books: *Can Anyone Hear Us?* (based on consultations with over 40,000 poor women and men in 50 countries); *Crying Out for Change* (drawing from a 23 country comparative study); and *From Many Lands* (which looks into regional patterns and country case studies). They were part of a global research effort designed for the 2000/1 World Development Report mentioned above.

[68] Gender analysis moved gradually away from Women In Development (WID) to a wider Gender And Development (GAD) focus.

[69] Kanbur and Shaffer (2007) advocate for applying mixed qualitative and quantitative (Q-Squared) methods in the analysis of poverty but delve into the differences between approaches and their implications for the numerical transformation of data, the selection of validity criteria, the conception/dimension of poverty adopted and interpersonal comparisons of well-being.

[70] The Eight Millennium Development Goals are the following:
Goal 1: Eradicate extreme poverty and hunger;
Goal 2: Achieve universal primary education;

Table III-1: The Evolution of Poverty Meaning and Measurement (1950s-2000s)

Period	Concept of Poverty	Measurement of Poverty
1960s	Economic	GDP per capita growth
1970s	Basic needs (inc. economic)	GDP per capita growth + basic goods
1980s	Economic	GDP per capita
1990s	Human development (inc. economic)	UNDP Human Development Indices
2000s	Multi-dimensional 'freedom'	Millennium Development Goals

Source: Sumner (2007: 6)

According to Sumner (2007) the shift in poverty conceptualization (and its measurement) is also reflected in the broader shift of development studies away from its genesis in economics towards a multidisciplinary approach. As such, the debate has shifted from regarding well-being as economically determined to a broader conceptualization; from relying on few indicators to relying on many; from considering the 'means' of well-being to analyzing the 'ends'; and from identifying 'needs' to identifying 'rights.' However, as the author notes, despite the movement towards a multidimensional conceptualization of poverty, income poverty measures of poverty predominate despite frequent references to 'non-economic' indicators.

Developing the Concept of Vulnerability to Poverty

A single snapshot poverty measure does not tell how many people have escaped from poverty or why some have succeeded in moving out of poverty while others have not. Likewise, it is not possible to establish how many people are born poor and how many become poor at some point within their lifetime.

Goal 3: Promote gender equality and empower women;
Goal 4: Reduce child mortality;
Goal 5: Improve maternal health;
Goal 6: Combat HIV/AIDS, malaria and other diseases;
Goal 7: Ensure environmental sustainability;
Goal 8: Develop a Global Partnership for Development.
These 8 MDGs break down into 18 quantifiable targets that are measured by 48 indicators, among them the reduction in the proportion of people living in extreme poverty by half between 1990 and 2015 (defined as people living on less than USD 1/day). Further information available in http://www.undp.org/mdg/goallist.shtml
The precursors of the current MDGs are linked to the OECD-Development Assistance Committee (DAC) guidelines and the International Development Targets (IDT).

Throughout this dissertation vulnerability is defined as the risk of falling into poverty in the future (even if the person is not necessarily poor now); that is, vulnerability is the shorthand for vulnerability to poverty.

Vulnerability is related to poverty but also distinct from poverty and is often associated with external or internal shocks such as natural disasters, an increase in food prices or sicknesses of an income earner within the household. This dissertation covers both the concept of poverty *and* the concept of vulnerability; it considers the potential role and effects of risks and completes the overall description of poverty moving away from a static concept to a dynamic phenomenon. Therefore, this dissertation incorporates the concept of vulnerability to poverty not only because it is an inherently important dimension of well-being, but also because of a crucial instrumental function: it allows studying poverty in a dynamic context and not confined within its static nature.

As Chaudhuri (2003) details, poverty is a stochastic phenomenon: today's poor may or may not be tomorrow's poor and currently non-poor households may experience a large adverse shock and become poor tomorrow. Conversely, some currently poor households will continue to be poor (or poorer) in the future becoming chronic poor while other households are only transitorily poor.[71] Stated as such, poverty becomes an *ex-post* measure of a household's well-being (or lack thereof), reflecting a current state of deprivation or of lacking the resources or capabilities to satisfy current needs. In contrast, vulnerability can be construed as an *ex-ante* measure of well-being, reflecting the future prospects of becoming well off. What distinguishes the two concepts is the presence of risk, if such risks were absent there would be no distinction between *ex-ante* (vulnerability) and *ex-post* (poverty) measures of well-being.

Chaudhuri (2003) further understands vulnerability as an intrinsic aspect of well-being and upholds that exposure to risk and uncertainty about the future is one of the central tenets of the basic economic theory of human behavior, embodied in the assumption that households

[71] Chronic poverty is the poverty that persists for many years or a lifecourse and that may be transmitted across generations (Hulme and Shepherd, 2003: 420). Further information is available at http://www.chronicpoverty.org.

and individuals are risk averse. Results from participatory approaches further corroborate that uncertainty and risk are a central preoccupation of the poor. Theoretical analyses and empirical evidence show that the nature and magnitude of the risks that households must face as well as the scope of the risk-management mechanisms they have access to, play a central role in the dynamics and scale of poverty.

Unexpected shocks lead to fluctuations in household income. In turn, vulnerability affects the behavior of households (in terms of consumption, investment, production patterns, and coping strategies) as well as the perceptions of their own situations. As such, vulnerability becomes a key dimension of well-being (WBI, 2005). The argument applies not only to unexpected shocks but also other predictable events such as death, unemployment or harvest failure, which are reasonably common and expected but where there is uncertainty about when they will hit. While the conceptual boundaries are somewhat blurred, there are three main forms of risk management (depending on the timing and the quality of the intervention): *ex-ante* risk reduction, *ex-ante* risk mitigation and *ex-post* coping (Conway and Norton, 2002: 534).

In the absence of insurance policies, vulnerability affects the behavior of households in multitude of ways. According to Morduch (1994), the second-best arrangement[72] that provides insurance to households in low-income countries are also known as consumption-smoothing mechanisms and include not only borrowing from neighbors and relatives or buying and selling durable assets but also exercising caution in production decisions. Examples of self-protection in production decisions include favoring traditional crops over riskier but more profitable varieties or favoring wage labor over riskier but more profitable entrepreneurial activities.

When people lack the means to smooth consumption, they are often trapped in poverty (Morduch, 1994; Barrett, 1999). If the household lacks sufficient assets or insurance to smooth consumption, shocks may lead to irreversible losses that lock them into perpetual poverty, such as distress sale of productive assets, reduced nutrient intake, or exclusion from or interruption of education that permanently reduces human capital. Vulnerable households

[72] The first-best arrangement would be to be able to buy an insurance policy.

engage in risk mitigating strategies to reduce the probability of irreversible outcomes as well as in coping strategies to overcome shocks when they materialize, i.e. households engage in strategies aimed at preventing the shock as well as strategies aimed at minimizing the effects of these shocks, when they occur. As highlighted by Morduch throughout his bibliography on the topic, some of these strategies are very effective, while others are less so – and none are costless.

Measuring Poverty

The following sections will discuss the main definitions and measuring tools in the development industry in general as well as the main poverty assessment tools developed within or for the microfinance industry within the last two decades.

It is noteworthy to highlight that most of the methods applied in microfinance were originally designed as poverty targeting tools as opposed to poverty assessment tools. Note that the objective of poverty assessment tools is to determine (ex-post) whether the MFI has reached poor people while the objective of the poverty targeting tool is to identify in advance poorer households in order to deliver microfinance services to them rather than to the relatively better-off or non-poor. Therefore, even if a tool was designed for targeting, it can also be used for increasing the institution's knowledge about their clients' poverty profile and measure the depth of poverty.[73] Thus, this section will present the experience of MFIs and their approaches to measuring poverty with these tools independently of whether they were originally designed as a targeting or an assessment tool.

In addition, the review of the MFI experience will also include impact and market research indicators which could potentially become indicators of poverty. This is because consumption, production and investment are not distinct and independent spheres in poor households. [74] As such, measuring poverty could include measuring assets whether they are used for productive purposes (i.e. as an investment) or as an indicator of a better living

[73] A case can be made for applying a different tool when the objective is to evaluate the adequacy of the original targeting tool itself.
[74] For instance, the investment in a motorcycle in rural Cambodia may be seen as a family recreational purchase as well as a productive asset if it is used as the basis of a home-based transport microenterprise.

standard (i.e. an outcome variable of their improved economic situation). Examples of impact or outcome variables include questions on facts or perceptions regarding services or self-declarations by respondents.[75]

Zeller (2004) identifies the following three commonalities among MFIs' existing poverty measurements:

- most are *relative measurements* rather than absolute measures (with only two exceptions, ACCION's Income tool and FINCA's tool in its expenditures section, as explained below in pages 75and 78 respectively);
- most use *multiple indicators and weighting methods* (implicit or explicit) in order to arrive at a broad measure of relative poverty;
- most tools apply the *household as the unit of analysis* and rarely delve into the individual level or relate to the community or other geographically bound levels of analysis. (Note that assessments at the individual level provide better information on differences within households along gender, age or kinship lines.)

In this regard, consistency comparisons among some alternative methods have produced encouraging results, with rankings of each measure reasonably consistent (Zeller, 2004: 12). Examples of consistency studies include Simanowitz (2000) comparing relative poverty assessments by participatory wealth ranking and visual methods and van de Ruit and May (2003) comparing participatory wealth ranking and the CGAP Poverty Assessment Tool. Van de Ruit and May compare the results for Small Enterprise Foundation (SEF) in South Africa and find that there was substantial overlap in the results, matching almost 70 percent of the households at the poorer end of the distribution, with 75 percent of those categorized as poor (results statistically significant at the 95 percent level) (2003:27). The authors also explore the relationship with the national Income and Expenditure Survey and conclude that households in the lower third of the distribution of the poverty score are more likely to be classified as poor using the conventional USD 1 a day money-metric measure: 60 percent of "USD 1 a day" poor households were also located in the bottom two deciles of the Poverty Assessment Tool score (2003:31).

[75] Note that impact or outcome indicators that rely on self-declarations are not easily verifiable (Zeller, 2004:15).

Finally, this review does not intend to be an exhaustive list of all possible poverty measures and tools devised or applied by MFIs but rather, it concentrates on the most commonly known assessment tools, the ones that have been tested more often or that have more chances of replication and those that are particularly promising.[76]

One-dimensional Measures of Poverty

One-dimensional measures of poverty can be applied to both absolute and relative definitions of poverty and can refer to monetary or non-monetary indicators.

Monetary Measurements (Income Poverty)

In the most conventional view, poverty is defined in monetary terms and is measured by comparing the income or consumption of an individual or a household with some defined threshold below which they are considered to be poor. This is often the starting point for most analyses of poverty and will be the starting point of analysis for this dissertation as well.

The basic criteria used in assessing whether or not a household is poor is based on an evaluation of whether its income is sufficient to meet the food and other basic needs of all household members to lead a healthy and active life. In order to make the assessment, a basket of goods and services satisfying a pre-set level of basic needs is constructed, corresponding to local consumption patterns. The value of this basket of goods is then called the "poverty line."

[76] In particular, of those tools reviewed by Zeller for IRIS and USAID as part of the Developing Poverty Assessment Tools Projects (2004) four tools have been excluded from this review: Opportunity International's Client Impact Monitoring System (CIMS); Gary Woller's "simple approach"; Freedom from Hunger's Food Security Scales and the scorecards applied by PRIZMA and South Pacific Development. The reasons for exclusion are the following: The two-page questionnaire of Opportunity International's Client Impact Monitoring System (CIMS) does not suggest any weighting system for the indicators proposed. Gary Woller's "simple approach" (which consists of asking: "In a typical month, how much does your household spend for all goods and services?") is unlikely to produce accurate results. Freedom from Hunger's Food Security Scales (which classify households into food-secure; food-insecure without hunger and food-insecure with hunger) are based on a one-dimensional indicator (albeit one relevant for rural Cambodia, though less so for transition economics and higher income populations). Finally, methodologies based on scorecards will be explored in the ACCION tool (see page 75. Note also that data collected by loan officers as part of the loan application process cannot guarantee reliability; this will also be explored in the same section).

The Living Standard Measurement Survey (LSMS) conducted by the World Bank is one of the most commonly known household expenditure surveys used nationally for poverty analysis.[77]

As detailed by Grosh and Glewwe (1995), the LSMS started as a multi-faceted research project in 1980 with the following objectives:

(a) improve the quality of household survey data;
(b) increase the capacity of statistical institutes to perform household surveys;
(c) improve the ability of statistical institutes to analyze household survey data for policy needs; and
(d) provide policy makers with data that can be used to understand the determinants of observed social and economic outcomes.

During the four phases of the project, existing household surveys were reviewed and the types of data needed were identified along with how best to design the actual fieldwork procedures. The surveys became customized to the specific country circumstances, processes were documented and the methodological tools and research results were disseminated with the objective of making the process as efficient as possible.

While there is a lot of variation in practice, the core LSMS questionnaire covers the following topics: household roster; housing; education; employment and wage income; health; agriculture; transfers and other non- labor income; and access to credit. Many LSMS cover additional topics as well, such as migration, fertility, anthropometric measures,[78] assets, savings, and time use. A full-scale LSMS contains over a thousand questions and requires six to eight hours of interview time, with most of the time devoted to the income module. The expenditure module alone still requires about one hour of interview time. In addition, to improve the quality of the expenditure data the recall time is "bounded" and so the LSMS questionnaires are divided over two visits to the household, usually two weeks apart with the

[77] For more information on LSMS, see http://www.worldbank.org/html/prdph/lsms
[78] Anthropometric measures are used in nutritional assessments and include: height-for-age; weight-for-age; weight-for-height, head circumference (in infants/toddlers); body mass index; waist-to-hip ratio; and percentage of body fat (the last three for adults). Individual measurements are usually compared to reference standards on a growth chart or to reference standards to assess weight status and the risk for various diseases. Weight-for-height measures wasting, weight-for-age measures underweight and both are used to identify current (acute) malnutrition. Height-for-age is used to detect stunting (retarded growth). Note, that weight-for-height is the most practical measure of the three since the other two require knowing the age. Conway reported the difficulties in establishing the age of children in Cambodia (1999:160).

consumption and expenditure modules covered in the second visit, and with the questioning explicitly referring to the enumerator's first visit as the start of the recall period. While the design and implementation methodology contributes to outstanding data quality, the administration of an LSMS is usually costly, particularly for their sample size. Most LSMS consist of nationally representative samples of 1,500 to 5,000 households. Costs have varied from USD 78 per household in Jamaica to over USD 700 per household in Brazil but the majority of cases fall between USD 150 and USD 250 per household. In addition, preparation can take between 6 and 18 months, analysis between 6 to 12 months and the typical administration of a survey takes between two and three years (Zeller 2004: 5-6).

The LSMS is a very flexible instrument for measuring the incidence of poverty and constructing poverty profiles and has proven its applicability among different geographic and cultural settings. However it is not the right tool to apply for MFIs. As stated by Henry et al. (2003), the LSMS method is a widely accepted and fairly precise tool in measuring poverty (as far as the income dimension of poverty is concerned) and allows for comparisons between clients and non-clients within one area of a country and between countries. However, it uses large samples and detailed data collection that make it far too costly, time-consuming, cumbersome, and analytically too demanding for regular use by MFIs (2003: 169-170).

Non-monetary Measurements

A second approach involves assessing whether people are able to obtain a *specific* type of consumption good such as food, shelter, health care or education. In this view the analyst would need to go beyond the traditional monetary measures of poverty because nutritional poverty might be measured by examining whether children are stunted or wasted; and educational poverty might be measured by asking whether someone is illiterate, or by the amount of formal schooling they have received (WBI, 2005). Non-monetary measurements of poverty commonly applied include life expectancy, infant mortality, literacy or indicators of access to public services such as schools, health clinics or drinking water. However, as Ravallion notes “one should be equally wary of relying exclusively on such indicators” (1992: 106). The author further states that one-dimensional non-monetary indicators may also be overly sensitive in making comparisons. This could be the case in assessing primary

health care when starting from a high mortality rate. Also, average consumption may increase while the poor gain nothing (1992:106).

The MFI Experience in One-Dimensional Measurements

Within the realm of MFIs measuring poverty, the MFI experience covers both monetary and non-monetary measurements of poverty. The first section on the experience of MFIs in assessing the poverty of clients will cover the work of ACCION and FINCA with monetary measurements and the second section will cover the Housing Index.

ACCION International is a private nonprofit organization that applies the solidarity group lending methodology reviewed in Chapter II. ACCION International was founded in 1961 and started as a student-run volunteer effort in the shantytowns of Caracas. Currently they have a network of lending partners covering Latin America, the United States and Africa.[79] ACCION's work focuses on commercial viability and institutional growth (i.e. the financial systems approach) and currently provides technical assistance to improve operations and efficiency as well as loan guarantees to partners so that they can access commercial capital.

The Foundation for International Community Assistance (FINCA) is a U.S. non-profit microfinance institution created in 1984 and that applies the village bank methodology reviewed in Chapter II. The founder of FINCA, John Hatch, started by providing small loans to farmers in Bolivia and by 2007 the FINCA network covered 20 countries in Latin America, Africa and Eurasia.[80] FINCA's affiliates are wholly-owned subsidiaries who use both donations and investments to build equity. The FINCA Capital Fund also provides loan guarantees to its network programs.

[79] Over the 1980s ACCION helped start microlending programs in 14 countries in Latin America, applying a "partner model." In 1992, ACCION helped create BancoSol (Bolivia), the first commercial bank in the world dedicated solely to microenterprise, as well as more than 15 ACCION-affiliated organizations that have become regulated financial institutions. In 1991, ACCION replicated the microlending model in the US, which became known as ACCION USA. In October 2000, ACCION began working in partners in sub-Saharan Africa and in 2005 the Unitus-ACCION Alliance stated in India.

[80] The Village Banking methodology first expanded to El Salvador and then Mexico, Honduras, Guatemala and Haiti. During the 1990s, FINCA started working in Africa: Uganda, Malawi, Tanzania, Zambia and the Democratic Republic of Congo. In 1995, FINCA started operation in Eurasia, opening a program in Kyrgyzstan, which was followed by Georgia, Azerbaijan, Armenia, Russia, Kosovo, Afghanistan and Tajikistan

These particular two cases will be studied because they constitute the only two methodologies that attempt to measure monetary absolute poverty and thus can be compared with nationally constructed poverty lines or international USD 1 per day cut-offs or their classification within the national expenditure quintile.

Monetary Measurements: ACCION's Income Tool

ACCION poverty assessments focus on profiling the poverty level of clients and the correlation between poverty, demographic variables, and its clients' microfinance activity. ACCION uses a Poverty Assessment Tool that seeks to measure directly household-level income and expenditure data and compare it with national and international poverty lines. Concretely, ACCION's Poverty Assessment Tool relies on existing data obtained through the Management Information System (MIS) of the institution and compared with national-level household surveys (Welch 2002).

A six-page questionnaire is applied to all incoming clients as part of the loan application process, covering simple and direct questions on different components of income and expenditures (which ACCION labels as "standard of living" data). This data becomes part of the internal MIS and is used in the "social score card," which is the poverty outreach report that management regularly presents to the Board. Further information on the ACCION Social Scorecard is available in Annex 3. However, the most important feature of the ACCION Poverty Assessment Tool for this review is that this income or expenditure data is collected and then compared with a national benchmark, so that an absolute poverty measurement is achieved.

While ACCION uses both income and expenditure data, MIS data commonly lacks detailed information on sub-items comprising total income and total expenditure and much of the detail and built-in cross-checking in ACCION's tool is focused on income (Welch 2002:9). Welch provides three reasons for focusing on income rather than expenditures that are linked to the fact that data is collected as part of the loan application process:

- First, loan officers concentrate more on collecting information on income than on expenditure, because income allows them to better assess the likelihood of repayment.
- Secondly, as part of the application process, generally income information receives greater focus than expenditure data.
- Thirdly, even if the application form was to be designed to collect balanced information on income and expenditures, credit applicants have an incentive to inflate household income and/or underreport expenses in order to obtain credit approval while loan officers have an incentive to omit sources of income that they are unsure about (2002:8-9).

To date, the ACCION tool has been compared with national-level benchmarks in 4 cases: Mibanco in Peru; SOGESOL in Haiti; BancoSol in Bolivia and Apoyo Integral in El Salvador and in all cases the results are well documented (see Welch and Devaney 2003, Dewez et al. 2003, Dewez et al. 2005 and Dewez et al. 2006, respectively). While the original intention of ACCION was to utilize the LSMS databases as its primary source of national household data as stated in Welch (2002: 8) of the four studies to date, only one applied LSMS as a benchmark while the other three had to use national-level income and/or expenditure surveys.[81]

Welch (2002) herself identifies some shortcoming to the tool. The first one is that ACCION's data collection is focused on income while the LSMS surveys data tends to focus on expenditure rather than over income. As Zeller (2004) notes, while the LSMS income module contains many pages of questions covering potential different sources of income and applies different recall methods directed to different recall methods, it is unlikely that the question : "What is your income?" could obtain reliable answers within the limited timeframe of an MFI's assessments. Other reasons commonly mentioned for rejecting income measures include the high fluctuations of income (which makes it not a good proxy for long-run wealth), the need to calculate regional price differences in countries with imperfectly and

[81] Specifically: in the case of Mibanco in Lima, Peru ACCION used the LSMS as the benchmark; in the case of Sogesol in Haiti (where there was no LSMS survey), ACCION used Haiti Living Conditions Survey and the Household Income and Expenditure Survey; in the case of BancoSol in Bolivia, ACCION used the Inter-American Development Bank Program for the Improvement of Surveys and the Measurement of Living Conditions in Latin America and the Caribbean, [which is similar to the LSMS]; and in Apoyo Integral in El Salvador , ACCION applied the National household living standards survey or EHPM.

poorly integrated markets and resulting analytical difficulties requiring significant skills and resources for their resolution (Zeller, 2004: 13 and 25). Furthermore, Welch also points out that MFIs require documentation of income sources in order to include income in their credit application form, leading to some systematic underreporting of income for families with multiple income sources and no documentation (2002: 9).

On the other hand, it is often argued that precisely because MFIs provide credit, questions regarding income have the potential of being more relevant or more easily integrated into the "loan application process" of the institution. The underlying assumption is that the loan officer will assess the income level of the potential borrower before the loan is sanctioned, and as such the information would be easily collected as part of the loan appraisal process – presumably for a specific loan use in her or his microenterprise.[82] The reasoning however, is not valid for those MFIs that rely on other group members to decide who gets the loan without the previous assessment of the loan officer or those that do not provide loans for a particular (business) use but rather allow clients to use their loans as a household lump-sum for whatever purpose and establish as the only requirement for sanctioning the loan that the household has sufficient and appropriate cash-flow to meet the repayment obligations.

Furthermore, even if thorough cash-flow analyses were to be standard routine among MFIs, the fact that loan officers collect this information during the loan application is quite likely to produce information that is not completely reliable: the client is likely to provide responses that will increase her or his perceived likelihood to receive the loan, regardless of the validity or reliability of the answer. Welch (2002) herself also identified this as a shortcoming because:

- the quality of the expenditure data is uncertain (clients and loan officers tend to focus on income rather than on expenditure);
- clients tend to inflate household income and/or underreport expenses; and
- loan officers have an incentive to omit sources of income that they are unsure about.

[82] See for example Welch (2002) or Sinha et al. (2003)

Another factor identified by Welch (2002) is that ACCION data does not include subsistence consumption as income, as the LSMS data does (2002: 9). This is a key concern of the ACCION's tool: it was designed for measuring income in urban settings and thus does not include detailed questions on home-produced and home-consumed food. As Zeller notes, especially in rural areas the problem of consumption of one's own production or Common Property Resources as well as the seasonality of income sources make the problem of relying on income information even more pronounced (2004: 13 and 25).

Monetary Measurements (Expenditures): FINCA-FCAP tool

In 1997, FINCA started a poverty-focused learning process surveying three of its country programs; in 1999 it surveyed another three countries and, in 2002, seven countries relying on research interns to conduct field surveys. Over time the variables, questions and sample design improved and currently the questionnaire is performed with the of aid hand-held PDAs (palm pilots) that has shortened interview time to 10-minute sessions and instantly downloads the data collected into the country database. In the summer of 2003, FINCA conducted a client assessment of 11 programs and announced the creation of their poverty assessment instrument: 'a tool with sufficient simplicity, flexibility, cost-effectiveness, and analytical power to both meet FINCA's poverty assessment needs while providing field staff with excellent market intelligence for designing more effective financial products and services.' The name of the tool was the FINCA Client Assessment Tool (FCAT).

The FCAT survey attempts to measure poverty by calculating a monetary-metric poverty indicator: the household's Daily Per Capita Expenditures (DPCE). In simple terms, FINCA's FCAT tool contrasts DPCE with national poverty lines expressed in local currency. A FINCA client household living on less than USD 1/day DPCE is considered severely or absolutely poor. A FINCA client household living on a DPCE between USD 1-2/day is considered moderately poor. And a FINCA client household living on a DPCE above than USD 2/day is considered above the poverty line (i.e. non-poor). The DPCE section of FINCA's FCAT is available in the first section of Annex 4.

One of the main lessons that FINCA has explicitly highlighted about its poverty research efforts is that estimates of household *expenditures* are considerably more accurate than estimates of household income. According to FINCA, this is especially true for female respondents because these women often do not know what their husbands or other adult male family members earn. What these women do know is how much they themselves earn plus what men give them for family necessities, making the estimate much more accurate. DPCE is calculated by applying questions on the number of household's members and estimations of sub-categories of *monthly* household expenditures such as expenditures in food, education, health, housing, utilities, transport, fuel, clothing, etc. This monthly household expenses are divided by 30 and by the number of household members in order to obtain the daily amounts in local currency DPCE. Finally, in order to assess poverty, the methodology compares the DPCE value with the national poverty level expressed in local currency to determine the percentage of respondents that fall into the three poverty categories.[83]

In addition, FCAT also monitors client self-scoring of their status with regard to 6 social metrics in order to assess program impact. These 6 areas are: food security, healthcare, housing, education, empowerment, and social capital. These additional social metrics of the tool are also available in the last section of Annex 4.

Non-Monetary Measurements: Housing Indexes or Land Ownership

Within the microfinance industry, there are also examples as well of non-monetary one-dimensional measures of poverty. For instance, the Housing Index has been used by many MFIs (particularly in South and Southeast Asia). Housing Indexes use external housing conditions as a proxy for poverty, and can be very effective in conditions where there is a consistent relationship between poverty and housing conditions. Its advantage is that the list

[83] In the 2003 research project three poverty lines were applied: the *US dollar equivalent* (employing each country's local currency exchange rate prevailing at the time of the survey), *the international dollar, adjusted for purchasing power parity (PPP) between different currencies* and the World Bank or national government's estimate of *each country's national poverty line in local currency*. FINCA found that expressing income and expenditure categories in international dollars adjusted for PPP inflated their value, resulting in unrealistically low poverty criteria that were inaccurate on a country-specific basis. Thus, FINCA prefers to compare DPCE with the national poverty level expressed in local currency to determine the percentage of respondents that fall into the three poverty categories.

of indicators needed (such as the quality of the roof or walls of the house) can be obtained very quickly by visual inspection. For instance the roof conditions in Asia are a good indicator of poverty: a temporary, flimsy roof (e.g., straw, leaves, plastic sheets, or cardboard) nearly always indicates a "very poor" household. "Poor" households tend to replace their roof with at least a semi-permanent one that keeps out the rain and wind and does not require constant repairs, e.g. galvanized sheets in the Philippines, or locally manufactured, second-hand tiles in South India (Simanowitz et al., 2000). Examples of well-known housing indexes include CASHPOR,[84] Amanh Ikhtiar Malaysia (AIM) and ASA. Examples of adaptations of the CASHPOR House Index in two countries as diverse as South India and China are available in Annex 5.

While the main advantages of this method are the time and cost requirements, a major disadvantage is that it neglects other dimensions of poverty by focusing only on one dimension (i.e. housing). Generalizing the indicator across rural and urban areas and across countries can prove difficult and may not be applicable when housing is homogeneous in the community, or when housing is not an important poverty dimension, such as in a region with a good climate. Hashemi and Foose report that housing indexes are excellent predictors of poverty in rural South Asia but that they are not applicable in urban areas or in many countries (2007:7).[85]

Other indicators such as land ownership work well as proxy indicators in specific contexts, but present the same disadvantage: they cannot be generalized as valid across regions. For instance, land ownership is a good indicator in rural Bangladesh but not for parts of Africa and Latin America (CGAP, 2000). Also, Ramamurthy et al. (2001) report that the main issue for the poor in Cambodia is not landlessness per se, but rather 'near landlessness.'[86] The majority of landless households do not obtain their main source of income from agriculture and thus, it is possible to find both relatively prosperous households and also impoverished households. On the other hand, those who own less than 0.5 hectare of agricultural land cannot subsist and yet in surveys they affirm that they 'depend on agriculture for their living.' Although the land is not enough for subsistence farming they work their land and thus have

[84] CASHPOR stands for Credit and Savings for the Hard-Core Poor of Asia-Pacific.
[85] Also, dwellers often live in brick and concrete houses but in far worse conditions than rural families in thatched or tin houses CGAP (2000) or where the poor have benefited from housing programs as in some Scheduled Caste villages in southern India (Simanowitz, 2000)
[86] Near landlessness is defined when a household owns less than 0.5 hectare of agricultural land because this is not enough for subsistence.

less time to work in additional activities to generate income. Thus, these near-landless households might be more vulnerable than landless households.

Multidimensional Measures of Poverty

But poverty is much more than lacking money. When people are asked to define and characterize their situations, they mention many interacting factors that reinforce one another (Narayan, et al., 1999 and 2000a), among them: inadequate shelter or other assets (including productive inputs); poor health; low levels of education; stress and insecurity; violence and criminality; lack of voice; humiliation and shame in their interactions with government, traders, moneylenders or landlords; racism or social exclusion.

The problems of focusing on only one dimension of poverty have been documented extensively; countries with comparable levels of growth of GDP per capita do not achieve comparable levels of development in education, health care, equality in economic participation, or high employment. In fact, there is little controversy among the literature about the need of defining well-being and poverty as a multidimensional concept.[87] However, if poverty is defined as a multidimensional phenomenon, simple solutions cease to exist and the debate becomes how to "operationalize" this multidimensionality, i.e. how to measure it.[88]

Among the authors that have reshaped the way we think about poverty, beyond the traditional one-dimensional monetary notion of well-being, the work of Amartya Sen must be highlighted. If conceptualizations of human well-being are increasingly multidimensional, this trend stems from his seminal capabilities theory. Sen (1981, 1984, 1987) argued that well-being comes from a "capability to function in society" setting a broad set of conditions

[87] See Kolm (1977), Atkinson and Bourguignon (1982), Maasoumi (1986), and Tsui (1995), cited in Bourguignon and Chakravarty (2003).
[88] Lister 2004; Pelletiere 2006; Ravallion 1996; Sen 2000; Sengupta 2005; Waglé 2002, cited in Waglé, (forthcoming). Waglé also states that attempts to measure wellbeing or poverty applying multidimensional frameworks have remained either narrowly conceived or highly disaggregated, including: Adelman and Morris (1967, 1973), Bourguignon and Chakravarty (2003), Chakravarty (1983), Deutsch and Silber (2005), Dewilde (2004), Moisio (2004), Morris (1979), Tsui (1999, 2002), and Whelan et al. (2002).

that constitute well-being. These may include being fed, healthy, clothed, and educated but shifted the focus from the 'means' (such as having income to buy food) to the 'ends' (such as being well nourished). According to Sen, individuals have entitlements that are created through endowment (assets owned) and exchange (trade and production by the individual). Many of these entitlements take place in the 'subsistence' or 'non-monetary/non-marketed' economy. Entitlements are exchanged for capabilities – a set of opportunities – to achieve the set of conditions of well-being (Sumner: 2007). Sen (1999) investigates five distinct types of freedom that help to advance the general capability of a person: political freedoms; economic facilities; social opportunities; transparency guarantees and protective security.[89] The crux of Sen's argument is that freedoms are both the primary *ends* and the principal *means* of development and that all of these freedoms are linked so that knowledge of what kinds of freedom strengthen one another is crucial so that individuals can shape their own destiny. As Bryant (2004) points out, Sen's concept of capabilities turned towards positive values and freedoms—what is possible for people, and thus, can also be seen as the other (positive) side of the coin of the 1970s and 1980s dependency school.[90]

Intimately linked with Sen's work is the concept of participatory development. The objective of participatory development approaches is to hear the voices of the poor, incorporate their views and bring them into the decision making process. As such, Participatory Wealth Ranking (PWR) tools will be described in the detail in following section.

Operationalizing Multidimensional Measures of Poverty

The operationalization of multidimensional measures of poverty has relied on two main tools: participatory approaches and indicator-based methodologies.

[89] For instance, political freedoms may take the form of free speech and elections; economic facilities may involve participating in production and trade; social opportunities may take the form of education and health facilities; transparency guarantees may minimize corruption and protective security may take the form of famine relief or unemployment benefits.

[90] Sen's work stresses that individuals need not be seen as passive recipients of developing programs. This is precisely because "capabilities" focuses on people solving their own problems and shaping their own destiny, much in the vein of the "agent-oriented" view (1999: II).

Participatory Wealth Ranking (PWR)

The common characteristic of participatory wealth ranking tools is that participants jointly identify the indicators and their weights (i.e. which of the indicators is more important) arriving at a classification of different participants (or groups of participants) into different poverty groups. The facilitator only guides the process and documents the results. The evolution of participatory methods, the principles and techniques have been described by Chambers (1992), Estrella and Gaventa (1998), Mayoux (2001) and Norton et al. (2001) among others.

According to Chambers, Participatory Rural Appraisals (PRA) are " a growing family of approaches and methods to enable local (rural or urban) people to express, enhance, share and analyze their knowledge of life and conditions, to plan to act" (1994a: 1253).

Henry et al. make a distinction between rapid appraisals and participatory appraisals. Both use inputs from the community and similar techniques (e.g. wealth ranking) but their ultimate goal is different. The ultimate goal of the participatory appraisal is empowerment of the target group (which requires extensive participation of the community and assumes an open research and an open development agenda) while rapid appraisals are meant to provide data on the community in a very short time and the agenda of the inquiry is predetermined (2003: 171).

Indicator-based Methodologies

Indicator-based methodologies rely on identifying a range of indicators that reflect powerfully on the different dimensions of poverty and for which credible information can be quickly and inexpensively obtained. One of the most well-known applications of multidimensional indicator-based methodologies is the Human Development Index (HDI). The HDI can be considered a practical application of Sen's work on well-being,[91] and is

[91] Albeit HDI do not incorporate all the capabilities and excludes endowments (Sumner, 2007:7).

computed as the weighted average of educational attainment, life expectancy at birth, and per capita income.[92]

The HDI does provide further evidence that income levels and human development are not directly correlated, for instance: the HDI of Cambodia and Botswana in 2006 are very similar but the GPD per capita in Botswana is four times higher than the income in Cambodia while life expectancy is much lower in Botswana (HDR, 2006: 285).[93]

The MFI Experience in Multidimensional Measures of Poverty

The main multidimensional tools applied by MFIs can also be divided between participatory tools and indicator-based methodology tools. Each of them will be reviewed in turn in the following pages.

Participatory Methodologies

Participatory approaches to poverty assessment have been used extensively by MFIs in the past, albeit mostly concentrating on targeting as opposed to *ex-post* assessments.[94] In fact, Concern-TPT (the precursor of AMK) applied a participatory wealth ranking tool combined with a participatory mapping exercise until 2002. The origin of the methodology was intrinsically linked at the "targeting" requirement of the program. Up to October 2002, the targeting policy of Concern-TPT stated that" "70 percent of the total members belonged to the poor and poorest categories" and aimed at reaching "90 percent of the poorest in each rural village" where it operated.

[92] In the case of OECD countries, it also includes a fourth dimension: social exclusion (Waglé, Forthcoming: 1).
[93] Life expectancy: Botswana: 34.9 and Cambodia: 56.5. GDP per capita (PPP USD): Botswana: 9,945 and Cambodia: 2,423.
[94] For instance, the Trickle-Up Program applies participatory methods to define their multidimensional poverty indicator. MicroSave-Africa has most recently applied participatory methodologies for MFIs. MicroSave was created by SUM/UNDP Africa and DFID to promote savings services for poor. Its regional center in Kampala conducts action research, develops curricula and provides technical assistance to MFIs. Further information is available in www.microsave.org.

As documented in Torres (2003), participatory approaches were applied to identify the poor and very poor families in the villages in order to target these families. The key informants were the villagers themselves and the process was facilitated by the credit officers.

The specific well-being grouping tool basically functioned as follows: The villagers classified themselves according to poverty indicators that they themselves had set. The exercise produced a list of all the households in the village classified into four categories: 'rich,' 'medium,' 'poor' and 'poorest.' Two groups of villagers were formed and each of them was asked to compile the list of all the households in the village and then classify each of them into one of the four categories. Both groups would be combined for the final count. If both groups had agreed on the classification of household X, household X would be classified and recorded as such. In case of discrepancy between the two groups of villagers in the classification of one particular household, further discussion would be fostered among all participants until an agreement and a definite classification could be reached. The credit officer recorded the list of all the households in the village and the decisions reached by the villagers regarding their grouping into the four categories described above.

Once the list of all households and their corresponding classification had been completed the village was also mapped. The map indicated the locations of the households as classified in the wealth ranking activity as well as other basic structures such as the school, a well, public houses, pagoda (religious house), etc. The combined group of participants drew a map on the ground with sticks, seed or stones and agreed on where households and other basic structures should be placed in the map. Thus, the map constituted a representation of the spatial distribution and location of resources, social groups, facilities, etc.

The facilitator (in this case the credit officer) replicated the drawing on the ground in a sheet of paper that would be kept in the office along with the list of the households and their appropriate poverty classification. These wealth ranking exercises were undertaken before the formation of the groups in a new village and were to be repeated every 3 years. Updates of the wealth ranking figures were undertaken every time a new member joined the Village Bank and these updates were documented by the staff (Torres, 2003: 71-73).

One of the most well known examples of MFIs that have applied participatory methodologies is Small Enterprise Foundation (SEF) in South Africa. The main two differences of the SEF

approach and the approach Concern-TPT applied is that in SEF the participatory mapping exercise took place before generating the list of households and that SEF enforced a rule of triangulation (i.e. at least three parties) in order to assure consistency of the ratings. Concretely, SEF's participatory wealth ranking takes place as follows: in the first step the community maps the village in a participatory exercise and a household list is generated from the exercise. Groups of five to three members are grouped into "reference groups" who are in charge of identifying each household into at least four categories of wealth. The results of the exercise are triangulated by using at least three reference groups in order to achieve consistency in the results of ranking and each household is assigned a score of wealth.

According to Henry et al. (2003), rapid appraisals and participatory appraisals (including participatory wealth ranking) methods can be well suited for targeting and for the participatory design of development projects and services, but also have disadvantages for the purpose of poverty assessments. First, the results are difficult to verify since they stem from the subjective rating of the community members. Second, the method may be consistent in finding the poorest third in one village, but it may not be consistent in finding in which communities reside the poorest third of an entire region. Precisely because each village sets its own parameters of poverty, the wealth ranking tools do not allow for comparison among villages, i.e. a "poor" household in village X might be classified as "very poor" in village Y or as "medium" in village Z.[95]

Thirdly, good results in the exercise require skillful and experienced facilitators or otherwise, there is the risk of potential implementation problems. The skills requirements for facilitators in participatory methods seem higher than the requirements of quantitative survey enumerators because the risks of respondent and sampling biases are also higher.

Mayoux (2003) and Simanowitz et al. (2000) further argue that while participatory wealth ranking uses the community's own definitions and perceptions of poverty and employs rigorous crosschecking methods to ensure consistency and accuracy of results, wealth ranking relies on detailed knowledge of a community of itself, and is unlikely to work in contexts

[95] According to Simanowitz, the practical experience with participatory wealth ranking shows that there is greater similarity among communities in the poverty indicators and cut-off criteria. On the other hand, the study of Elbers et at (2003) found large differences in the poverty ranking even among neighboring communities and this differences are explained by the geographic characteristics of communities, even after controlling for demographic and economic conditions (Zeller, 2004).

where the community is weak, or where there are high levels of conflict or mistrust/suspicion. Cambodia is rebuilding itself from prolonged armed conflict and distrust is still prevalent, thus it seems not to be the right candidate for this tool.

In addition, Torres (2003) further identified problems with the implementation of the wealth ranking methodology in the Concern-TPT program. These implementation problems were linked to data discrepancy, lack of triangulation processes for cross-checking and lack of mechanisms to assess the skills of field staff (2003:91).

Therefore participatory tools within the context of Cambodia (and AMK) have the following disadvantages. Firstly, it is not possible to compare the results regionally, nationally or internationally. Secondly, the tool is particularly not appropriate in Cambodia's post-conflict context. Thirdly, the skills of the facilitators have been proven insufficient to guarantee correct implementation problems. Thus, the participatory tool will be excluded as a potential evaluation tool for poverty assessment.

Indicator-based Methodologies

The indicator-based methodologies will first review the "net worth" or "check list" tools, secondly the CGAP/IFPRI Poverty Assessment Tool and thirdly the CGAP/Grameen/Ford Progress Out of Poverty Index.

Probably the more well-known examples of an indicator-based methodology applied by MFIs are the CASHPOR "net worth" tests or the "check list" tools applied by the Grameen Bank and the Grameen Bank replicators,[96] which apply a simplified household poverty surveys with a small list of indicators that when combined give a reliable assessment of the poverty level of an individual household. This indicator-based methodology attempts to solve the problems of the Housing Index (i.e. limited to externally visible characteristics and inability to consider other aspects besides housing) by introducing the 'net-worth test' that is used in

[96] MFIs that use the check list tool include: the Kabalikat para sa Maunlad na Buhay Inc. Means Test (KMBI, Philippines); Rhunu UNESCO (Sri Lanka); Family Development Fund (FDF, Egypt); International Rescue Committee SEAD Program (IRC, Ivory Coast); and Lift Above Poverty Organization (LAPO, Nigeria).

borderline cases because it adds extra cost to the tool. The method usually involves three steps: (1) Identifying high-density poverty areas (2) using the house (or compound) as a crude indicator to eliminate the obvious non-poor households and (3) conducting a more detailed household interview (named "net-worth" test) to determine program eligibility amongst the remaining households. Specifically, the staff walk systematically through the villages selected as containing many poor and look at each house and compound, eliminating those that are large, in good condition, and made from expensive materials. The houses that may or may not contain a poor or poorest household are scored based on a locally relevant set of points. Two cut-offs are established: (i) between the poor and non-poor and (ii) of those identified as poor, between poorest and moderately poor. Cut-off points guide eligibility (e.g. 3 or less: "likely to be very poor"; 4 to 6: "poor"; greater than 6: "unlikely to be poor"). All houses that scored 3 or less are marked on a simple map of the village as "eligible looking houses." Once the list and map of eligible-looking houses has been completed for the village, the field staff will go to the houses on the list to verify the eligibility of the households through a short, 10 to 15 minute net-worth interview that focuses on the value of their productive assets (e.g. agricultural land owned and/or operated, farm equipment and machinery, large farm animals, transport vehicles, and stocks of goods for sale, etc.). According to Zeller, the "net worth" is thus the difference between value of assets owned and the debt of the household (2004:27). According to the Net Worth proponents, there is a regular and independent process of random checking the quality of the output from the staff that assures both accuracy and transparency. On average, it takes field staff five minutes to index a house and determine eligibility scores and about 10 to 15 minutes per household to perform the net-worth interview.

In the "check list tool" or "net worth" test, the indicators depend on the local characteristics of poverty but can be divided into four main areas: income and expenditure; economic status (proxies of income levels such as household assets, productive assets, housing); social indicators (such as education or households headed by women); and indicators of wider poverty factors (such as water, health or education). According to Simanowitz et al. (2000), developing and implementing effective and rigorous "check-list" tools requires considerable time and resources, but when combined with another tool (such as the House Index) they can be very effective and accurate. According to Zeller, the advantage of the "net worth" test compared to the housing index is that assets other than housing are included, as well as debt;

the disadvantage is that the questions used to estimate the current value of assets and debts may be difficult for respondents (2004: 27-28).

Another indicator-based methodology is the complete FINCA-FCAT tool that is available in Annex 4. Note that the FCAT section of Daily Per Capita Expenditures (DPCE) was explored in page 78 but that the complete tool also covers six additional social metrics (food security, healthcare, housing, education, empowerment, and social capital).

CGAP-IFPRI Poverty Assessment Tool: Relative Poverty-PCA

The Consultative Group to Assist the Poor (CGAP) and by the International Food Policy Research Institute (IFPRI) developed the GGAP/IFPRI Poverty Assessment Tool with the aim of constructing a multidimensional poverty index that allows for comparisons between MFIs and across countries. The tool was primarily designed for donors and investors who require a standardized and rigorous tool that can be applicable globally in order to make investment decisions. In order to ensure a holistic understanding of the institution, CGAP recommends the use of the poverty assessment tool in conjunction with the other appraisal tools, such as the CGAP Appraisal Format (which covers the MFI's performance in governance; management and leadership; mission and plans; systems; operations; human resource management; products; portfolio quality and financial analysis).

The CGAP/IPRI tool presents a set of indicators that reflect the multidimensionality of poverty and involves a survey of 200 randomly selected new clients and 300 randomly selected non-clients from the same geographical area with the household as the basic sampling unit.[97] Concretely, the survey collects information on the following dimensions: demographic structure and economic activities; footwear and clothing expenditure; food security and vulnerability (frequency of meals, consumption of luxury and inferior food, hunger episodes);[98] housing indicators (ownership status, room size, building materials, access to electricity, drinking water and sanitation, cooking fuel); land ownership; and ownership of assets (livestock, productive assets and consumption assets). The tool takes

[97] The choice of new clients is precisely to eliminate any impact from being in the program.
[98] Examples of inferior foods include cassava in Kenya, coarse bread and chili in India and tortillas in Nicaragua.

about four months to complete and costs about USD 10,000.[99] When the data is compiled, a single index of poverty is created that assigns a score to each household, representing the household's poverty status in relation to all other households in the sample. The CGAP/IPRI tool applies Principal Component Analysis (PCA) as the statistical technique used to identify the components of the poverty score. Thus, the poverty index allows for a comparison of poverty levels of clients and non-clients in a specific region. In order to allow for national and international comparisons, two additional inputs are added: (a) a national evaluation panel of experts who rate the MFI's operational area against national average and (b) the Human Development Index (HDI) to rank the poverty level of the country against all other countries. Further information on the CGAP/IPRI Poverty Assessment Tool is available in Chapter VII.

CGAP-Grameen-Ford Progress Out Of Poverty Index

The Progress Out Of Poverty Index is a composite, verifiable, non-financial indicator developed by CGAP, Grameen Foundation and Ford Foundation. The indicators are specific to each country and must be simultaneously "simple and low cost" and "sufficiently robust and globally applicable" (Hashemi and Foose, 2007: 7). In each country, a "poverty score card" is created sing techniques similar to those employed in credit scoring drawing from information from the LSMS or national-level household surveys. The index uses a small set of simple, easily observable indicators and indicators are selected based on the degree in which they predict the household poverty level. Thus the Progress Out Of Poverty Index provides an accurate estimate of the probability that a client is poor. [100] The methodology was developed by Mark Schreiner and scores typically include family size, the number of children attending school, the type of housing, or what the family typically eats. As the name suggest, the index also serves as a baseline, so that repeated application will allow MFIs to track client movement across poverty lines over time. Grameen Foundation further states that the index is both a management and a measurement tool, allowing MFIs to better determine

[99] The costs in four MFIs were it was tested ranged from USD 4,000 to USD 16,000.

[100] Scores are sums of indicator points and range from zero (most likely poor) to 100 (least likely poor). Scores are not poverty likelihoods (that is, estimated probabilities of being poor) but are associated with poverty likelihoods through a "poverty likelihood table." Scorecards are accurate: with 90 percent confidence, they estimate a group's overall poverty rate within about 1 or 2 percentage points. For individuals, they typically estimate poverty likelihoods within 5–14 percentage points (Schreiner, 2006).

the needs of their clients, the most effective programs; how quickly clients leave poverty, and what helps them to move out of poverty faster.

According to Grameen Foundation, the Progress Out Of Poverty Index is practical and reliable: the tool consists only of 10 indicators, is simple to collect, easy to verify and difficult to manipulate. Biggar states that initial field testing has shown that loan officers can indeed streamline the data collection and save time (2006:32). Hashemi further states that tests show that a single scorecard works with high accuracy in both rural and urban areas of a given country. (2007:7)

According to Hashemi and Foose, Scorecards for each country differ on the questions asked and on the specific numeric score assigned for each of the questions asked but would remain a statistically rigorous and user-friendly proxy for the same common global indicator: percentage of clients below the national poverty line or living on less than USD 1-2 per day [ppp] (2007:7). The Progress out of Poverty Index has been created or piloted for over 20 countries in Latin America, Asia and Africa.[101] Please refer to Annex 6 for examples of the Poverty Score Card or the Progress Out of Poverty Index for the Philippines, Mexico and South Africa.

However, indicator-based methodologies also have disadvantages. The main disadvantages of "check lists" or "net worth" tests is that the indicators and weights assigned to each of the indicators are somewhat arbitrarily chosen and that does not allow for comparisons across countries. The main disadvantage of the CGAP-IFPRI Poverty Assessment Tool is that is a relative score and as such, not directly comparable across countries. The CGAP/Grameen/Ford tool is promising but the tool is too recent to be able to evaluate the implementation results. In addition, there are no current plans to create a scorecard for Cambodia and the creation of the scorecard by an individual MFI is too expensive and unfeasible given the lack of access to the national equivalent to the LSMS (the Cambodia

[101] These include: Bangladesh, Bolivia, Egypt, Ghana, Guatemala, Haiti, India, Kenya, Malawi, Mexico, Morocco, Nepal, Nicaragua, Nigeria, Pakistan, Palestine, the Philippines, El Salvador, South Africa and Vietnam (CGAP, 2007). Other countries recently added include: Argentina; Bosnia and Herzegovina; Brazil; Colombia; Dominican Republic; The Gambia; Mali; and United States of America (further information available at: www.microfinance.com/#Poverty_Scoring)

Socio-Economic Survey (CSEC)). Another potential drawback of the CGAP/Grameen/Ford tool is that it becomes totally dependent on an external source for updating the information. Even if CGAP/Grameen/Ford were to create a score card for every single country, the issue remains on who will be in charge of updating this scorecard and if the potential changes in the scorecard will allow for the assessment of changes over time. A quick glance at the three examples of scorecards publicly available at the time of writing this dissertation (for the Philippines, Mexico and South Africa) seems to highlight the need for frequent updates for the scorecard. This is because some of the indicators included are likely to be irrelevant indicators of poverty in a relative short time. Examples include the question of whether the house has bough fabric softener in the last month for the case of Mexico, the question of how many TV a household owns in the Philippines or the questions of whether the household owns a VCR, a microwave, a washing machine or a landline phone in South Africa. Because the scorecards are constructed only with 5 to 10 indicators, it is likely that changes in the poverty explanatory power of even one of these indicators would affect the overall score dramatically. Given the dynamism of the developing world, particularly in the use of new technology the issue of updating the score is indeed relevant.[102]

Subjective Measures of Welfare

Recent literature is looking at a new concept that takes a new approach for measuring wellbeing. Subjective measures of welfare aim to quantify poverty and welfare through instruments that rely on respondents' subjective assessments. [103] As Ravallion and Lokshin state "it is a paradox that when economists analyze the welfare impacts of policies, they typically assume that people are the best judges of their own welfare, yet they resist directly asking people themselves whether they are better off." In addition, "conventional assessments of whether one person is better off than another may disagree with peoples' own assessments" (1999: 2 and 24, respectively).

[102] For instance, in Cambodia, it is far easier and cheaper to have access to a mobile phone than to a land line and it is difficult to even find VCRs in stores when most people (even in rural areas) can afford a DVD player. The speed for changes tends to be different between the developed and the developing world.
[103] This section has relied on a summary of the literature on the topic by Carletto and Zezza. More extensive reviews on subjective measures of welfare can be found in Oswald (1997), Ravallion and Lokshin (2000), and Frey and Stutzer (2002).

Indeed, data on subjective well-being has been applied by economists to examine both macro and micro-oriented questions and it is becoming a fashionable topic. In their recent article, Kahneman and Krueger (2006) report that, according to a tabulation of *EconLit*, from 2001 to 2005 there were more than 100 papers written analyzing data on self-reported life satisfaction or happiness compared with the merely 4 papers written from 1991 to 1995.

However, how to measure subjective welfare is not an undisputed terrain. Back in 1965, Cantril proposed the idea of a ladder on which respondents were asked to rank themselves in terms of happiness or satisfaction with life. But as Ravallion and Lokshin (1999) point out, being poor is not the same as being unhappy. Since then, the idea of the ladder has been modified to a narrower definition of economic welfare, asking people to put themselves on a poverty scale, also known as the Economic Ladder Question (ELQ).[104] Van Praag (1968) introduced the Income Evaluation Question (IEQ), asking respondents what income they would consider "very bad" to "very good." Kapteyn (1994) introduced the Minimum Income Question, (MIQ) asking respondents what income they consider the minimum necessary "to make ends meet." However the MIQ question has been criticized (Ravallion and Lokshin, 2000; Deaton and Zaidi, 2002) because in developing countries, the concept of income vary greatly across respondents, as well as from the definition of income often applied by economists. Pradhan and Ravallion (2000) adapted Kapteyn's approach to developing countries by asking questions on "the perceived adequacy of (food or total) household consumption," defining the subjective poverty line (SPL) as "the level of total spending above which respondents say (on average) that their expenditures are adequate for their needs."

Precisely because of the novelty of the new approach, attempts to measure subjective wellbeing have been compared with standard 'objective' measures: Pradhan and Ravallion (1998) study in Jamaica and Nepal shows that the aggregate poverty rates based on subjective poverty lines come close to those based on "objective" poverty lines, but that there are notable differences in the demographic or geographic profiles of poverty. Lokshin, Umapathi and Paternostro (2004) study in Madagascar applying categorical consumption adequacy

[104] The question reads as follows: *please imagine a 9-step ladder where on the bottom, the first step, stand the poorest people, and on the highest step, the ninth, stand the rich. On which step are you today?* (Ravallion and Lokshin, 1999:9).

questions show overall strong correlation between subjective welfare and household income but the measures appear to differ substantially the demographic dimension and the spatial poverty profile. Carletto and Zezza (2004) study in Albania also found that subjective and objective measures of poverty are clearly correlated and yield very similar poverty headcounts, but that the actual overlap between the two definitions in terms of those who are identified as poor was not as strong.

Carletto and Zezza (2004) study also confirms that subjective welfare includes idiosyncratic dimensions of poverty not fully captured by traditional moneymetric measures. However, the authors also affirm that irrespectively of the particular subjective definition or measure chosen, the literature consistently suggests that self-reported measures of welfare regularly deviate from objective measures of welfare.[105] They list the following possible reasons for the discrepancy:

- People may not equate their welfare or poverty with income or expenditure alone;
- Relative income explanation (Easterlin, 1974): it is relative rather than absolute income that matters in explaining self-reported levels of welfare. Quantitative measures of poverty are in most cases based on absolute poverty lines, but the way people 'feel' about their welfare status depends –according to this interpretation- on how the distribution of the income around them.
- Negative implications of unemployment and poor health on people's perception of own welfare. Psychology and socio-economic literature documents that being unemployed may cause depression and anxiety, and carry a social stigma in many societies. At equal income levels, being unemployed or in ill health reduces the subjective assessment of one's welfare, even when this is defined in purely economic terms (Ravallion and Lokshin, 2000). In addition, people may be concerned that a situation of high unemployment may adversely affect them in the future. Empirical results from 12 European countries show that a 1 percent point increase in local unemployment levels has a negative impact on people's satisfaction (Frey and Stutzer, 2002).

[105] This statement holds whether subjective welfare is defined broadly (e.g. "happiness") or narrowly, (e.g. "poverty" or "financial situation") and whether objective measures are based on GDP or poverty defined on the basis of income or expenditure data.

- Demographic characteristics (household size, marital status) have also been investigated and found to be significant (Diener et al., 1999; Lanjouw and Ravallion, 1995).
- Difficulty in disentangle the various effects of personality traits in the econometric analysis. Personality traits influence the way people respond to subjective questions but they also influence their own socioeconomic characteristics such as household size or employment or income.[106]

Kahneman and Krueger (2006) in a recent paper, argue that it is important to distinguish between "utility" as an economic concept with the perceptions of an individual's experiences or feelings. In fact, individuals interpret categories differently (for instance, in a scale 1 to 10, my answer of 4 may be equivalent to your answer of 6). This fact makes comparisons across countries difficult, along with cultural or language differences in answering standard satisfaction. In order to solve this problem the authors propose the U- index, defined as a misery index that measures the proportion of time that people spend in an unpleasant state. The U-index (for "unpleasant" or "undesirable" is an ordinal measure at the level of feelings. Other studies have proven that the effects of context[107], weather,[108] mood [109]or an earlier question in a survey[110] affect the reliability of the standard life satisfaction and happiness questions.

No MFI to date has applied or adapted the subjective poverty approach in order to assess the poverty of their clients.

[106] For instance, Ravallion and Lokshin (2000) in Russia's longitudinal dataset found that the proportion of women and children in the household and marital status helped explain self-rated welfare. However, household size became insignificant. The authors assess that this result is because the longitudinal dataset allowed them to control for personality traits.
[107] Marcel Fafchamps and Forhad Shilpi (2004) in their study in Nepal, showing that isolation (measured by distance to markets and proximity to large urban centers) significantly reduce subjective assessments of income and consumption adequacy.
[108] Life satisfaction is reported higher on nicer days; although if individuals are first asked explicitly about the weather, the weather does not influence their reported life satisfaction (Schwarz and Clore, 1983).
[109] Schwarz (1987) invited subjects to the lab to fill out a questionnaire on life satisfaction. However, before they answered the questionnaire, however, he asked them to photocopy a sheet of paper for him. A dime was placed on the copy machine for a randomly chosen half of the sample. Reported satisfaction with life was raised substantially by the discovery of the coin on the copy machine—clearly not an income effect
[110] On the other hand, Krueger and Schkade (2007) found that both overall life satisfaction measures (i.e. subjective well being) and affective experience measures derived from the daily recall method on different days two weeks apart show similar reliability.

Measuring Vulnerability to Poverty

If there was little consensus in how to operationalize poverty measures, there seems to be even less agreement in how to operationalize the concept of vulnerability. Morduch (1994) proposes to measure poverty in terms of both the means and the variance of consumption over time, or to measure poverty in terms of certainty-equivalent consumption; but measuring vulnerability is "difficult to make precise and operational" (2004:224).

Some of the proxies applied in order to measure vulnerability to poverty include: movements in and out of poverty; entry and exit probability; length and frequency of poverty spells; or income variability and mobility (Coudouel et al. 2002:54-58); the distance between mean per capita expenditure and the poverty line; or the consumption volatility observed from panel data (Conway and Turk, 2001).[111] A notable exception to the lack of empirical evidence on how to operationalize the concept of vulnerability to poverty is the "asset vulnerability framework" developed by Caroline Moser.

The "asset vulnerability framework" tries to identify what the poor have, rather than what they lack and in so doing focuses on their assets and was tested by Moser (1998) in four urban communities. The framework goes beyond a 'static' measuring of the poor, towards classifying the capabilities of poor populations to use their resources to reduce their vulnerability. The results of the study illustrate that the poor are managers of complex asset portfolios and how asset management affects asset accumulation (and poverty) and vulnerability. The framework identifies five categories of assets that the urban poor manage: labor; human capital; productive assets (focusing on housing within the urban settings of her research cases); household relations; and social capital.[112] The framework intended to facilitate interventions promoting opportunities (and removing obstacles) to ensure that the

[111] Also, note that there is no clear empirical evidence of how to measure vulnerability as distinct from the concept of vulnerability to poverty.

[112] Management of labor as an asset identifies multiples earners with high income levels as the optimum strategy. Management of human capital involves better educated household heads faring well. Management of productive assets (such as housing in the urban setting) identifies home owners as having considerable advantages. Management of household relations identifies stable, nuclear or small, extended households with low levels of intrahousehold conflict doing best. Finally social capital identifies active reciprocal support networks within communities (particularly between women) and participation in community activities as facilitating trust and collaboration. Note that social capital is discussed in terms of Putnam's work which focuses on the stocks of 'reciprocal networks of trust and norms embedded in the social organization of communities.'

urban poor use their assets productively. The research identified asset portfolio management strategies across communities in very different global context and the complexity of determining strategy sequencing.[113] Finally, it also provided generalized checklists of potential solutions derived from the four research communities, each designed to consolidate a different asset.

While it seems undisputed that there is a role for microfinance in reducing vulnerability to poverty and that research is needed to achieve financial product innovations that allow the poor to manage risk better, there is very little empirical data of measuring vulnerability in microfinance. Most existing tools incorporate some indicators that could measure vulnerability to poverty, not all of them necessarily identify them as a "vulnerability" indicator per se. No MFI to date has applied or adapted a vulnerability framework in order to assess the poverty of their clients, at least not exclusively. Given the practical difficulties, often the linkage of vulnerability and microfinance is seen through asset accumulation: microfinance allows households to build assets and protect themselves from both sudden unexpected shocks and other more predictable demands for lump-sums of money.

Cohen and Sebstad (2000) conclusions paper of the AIMS study suggest that microfinance plays an important role in decreasing vulnerability. Indeed, recent research argues that the lack of insurance markets and imperfect credit markets in developing countries forces households to accumulate assets precisely for income –smoothing purposes. This behavior is relevant for microfinance because, as Kochar (2002) details, it would favor investments in assets that are relatively "liquid" but have low yields, such as animals, food stock or cash instead of high yielding "illiquid" assets such as the physical capital required to increase crop incomes. When liquidity is chosen over return of an asset, households will experience lower lifetime wealth and thus higher poverty. The author provides empirical evidence on the effects of adult male illnesses on savings decisions and composition of assets portfolios in rural Pakistani households. Her conclusions show that indeed anticipated ill health of adult males is a major determinant of poverty because it significantly influences the amount and type of assets the household saves, reducing their productive assets (2002: 266-267). Also, the ability of poor household to deal with their vulnerability depend on the recurrence of the

[113] This is because of simultaneous strategies and of the interrelationship between the consolidation of different assets.

shocks, Sharma and Buchenrieder (2002) report on the 1994 study by Alderman in Pakistan using IFPRI data where the author found that if a household has a negative income shock following a positive shock, it will not reduce its consumption but increase debt. However, if a household has two negative shocks in a row it will reduce consumption and not only will not increase debt but sell off physical assets (2002:232).

Reasons behind the Choice of Poverty Measurement Tools

The literature on targets and indicators talks about 'SMART' targets, which are *s*pecific, *m*easurable, *a*chievable, *r*ealistic, and *t*ime-bound.[114] However, indicators should also be cost-effective (or *e*conomic), relevant (or *a*ppropriate), *s*imple, and updated frequently, say *y*early: EASY as well as SMART (Maxwell, 1999). In fact, the best indicator would be the one that minimizes costs and effort for a certain level of accuracy. Applying the term coined by Robert Chambers (1997) to highlight the importance of knowing what is not worth knowing, the best indicator must achieve "optimal ignorance' so that it needs the minimum amount of information in order to achieve the minimum level of accuracy desired. Zeller (2004) adds that in addition of being visible and obtainable at low cost, indicators should be verifiable by other investigators. This involves that an MFI itself applies poverty assessment tools, these should be externally verifiable. In addition, a tool that allows for national and regional comparisons and that could also be used as baseline data would be also preferred.

Table III-2 below summarizes existing poverty assessment tools applied by MFIs, highlighting their main positive and negative features.

[114] The same acronym is also used for *s*tretching, *m*easurable, *a*greed, *r*ecorded, and *t*ime-limited (Maxwell, 1999).

Table III-2: Summary of MFI Poverty Assessment Tools Reviewed
(Positive and Negative features highlighted)

	One-dimensional	Multidimensional
Absolute Measures	**ACCION Income Tool** ✓ Absolute measure → comparable ☒ One-dimensional ☒ Focus on income (over expenditure) ☒ Uncertain quality of data (as it is collected as part of application process) ☒ Self-consumption not included **DPCE section of FINCA-FCAT tool** ✓ Absolute measure → comparable ✓ Based on expenditure ☒ Self-consumption not included	**CGAP/Grameen/Ford Progress Out of Poverty Index (PPI)** ✓ Multidimensional measure of poverty ✓ Absolute measure → comparable ☒ Too recent to evaluate ☒ Scorecard not available for Cambodia and not possible to create by an independent MFI (benchmark national survey not available and not clear on costs of creating the scorecard) ☒ Potential uncertainty on updates of the score
Relative Measures	**Housing Indexes** ✓ Easy and fast ☒ One-dimensional ☒ Relative measure → Not easily comparable (it is one-dimensional but non-monetary) ☒ Not applicable in all contexts (cannot be generalized)	**Participatory Wealth Ranking** ✓ Multidimensional measure of poverty ✓ Participants define poverty ☒ Subjective rating → difficult to verify ☒ Relative measure → not comparable (*not even for comparisons across different villages*) ☒ Unlikely to work well in post-conflict Cambodia ☒ Experienced facilitators needed (minimalist MFI staff not likely to have the necessary skills) **NET WORTH / CHECK LISTS or Complete FINCA-FCAT tool (not only DPCE)** ✓ Multidimensional measure of poverty ☒ Indicators and weights assigned to each of the indicators are arbitrary ☒ Relative measures → not comparable **CGAP/IFPRI Poverty Assessment Tool** ✓ Multidimensional measure of poverty ✓ Robust methodology ☒ Relative measure → not comparable

Analysis by author

The conclusion of this review is that the goal of achieving a multidimensional poverty tool that provide an absolute measure of poverty is not achievable, far less for a microfinance institution attempting to be sustainable. Attempting to measure the multidimensionality of poverty is complex and it is likely confined to a *relative* poverty indicator that cannot be compared nationally or internationally. On the other hand, *absolute* poverty tools which allow for comparisons are one-dimensional tools that represent only one aspect of poverty or vulnerability to poverty. However, given the intrinsic nature of microfinance services, if a one-dimensional poverty tool was to be chosen, a monetary tool would be preferred over a non-monetary one-dimensional tool. The review also suggested that participatory tools were not the best options for the case of evaluating poverty levels of MFI clients since the

methodology does not allow comparing the poverty level among different villages or working areas of the MFI.

Therefore, given the needs of covering multidimensional aspects of poverty and providing an absolute measure within the Cambodian context but the impossibility of doing so within one single tool, this dissertation will apply two different measuring tools:

(i) a household food expenditure tool labeled "AMK Daily Food Expenditure Per Capita" that is loosely based on expenditures tools tested by FINCA and IRIS, and
(ii) an adaptation to rural Cambodia of the CGAP-IPRI poverty assessment tool based on PCA, which will be labeled " AMK-PCA Wellbeing Score"

The AMK Daily Food Expenditure Per Capita tool is variation of the FINCA-FCAP expenditures tool with some elements of the composite table on expenditure applied by IRIS but adapted to rural Cambodia and focusing only on food expenditure per household, and thus excluding other non-food items such as utilities, transport, fuel and other non-food goods. As Zeller and Sharma (1998) show in many countries the poor spend as much as 91 percent of their income in food. AMK's tool includes not only the cash expenses in food items but also quantify the consumption from household's own production (including rice and other crops, vegetables or animals) and from other food items gathered, collected or fished. This one-dimensional indicator has been selected to assess poverty of clients because it is an a*bsolute measurement of poverty* in monetary terms *that can be compared with the food poverty line* and thus allows for comparisons not only among different provinces within Cambodia but also with other countries in the region or the world. The specific methodology applied for AMK Daily Food Expenditure Per Capita tool will be discussed in the Third Section: Empirical Study.

The AMK-PCA Wellbeing Score is an adaptation for the specific context of rural Cambodia of the IFPRI/CGAP tool and has been selected because it is a *multidimensional* measure of poverty covering expenditures, physical and human assets as well as vulnerability and food security. However, while the AMK wellbeing score represent a more complete picture of poverty and vulnerability to poverty, it is a *relative* poverty score measuring whether a household is worse off or better off compared to other households sampled and thus does not

allow for national or international comparisons. The underlying hypothesis is that while it is not possible to create a universal poverty or vulnerability score system, it is possible to create one for household in rural Cambodia. The specific methodology applied for AMK-PCA Wellbeing Score tool will be explored in the Third Section: Empirical Study, but it is important to first address some specific issues identified by the authors of the PCA methodology who state:

(i) that the tool is not meant to be undertaken directly by MFI staff.

(ii) that the tool is not meant to be used as guide for future program development and

(iii) that the tool is not meant to be used to assess the impact of microfinance services in the lives of clients.

Each of these topics will be refuted in turn.

Regarding the warning that the tool is not meant to be undertaken directly by MFI staff, the authors state that tool was intended to "assess the poverty levels of MFI clients compared to non-clients within the operational area" and could be used "to verify the extent to which an existing strategy results in poor clients joining the MFI" but was "not meant for direct use by an MFI" (2000:1-3). Not only is the required level of specialized knowledge unlikely to be found among MFI staff, but direct field testing by an MFI could greatly bias household responses" (Henry et al., 2003: 2). This empirical study has been implemented directly by the research department of AMK, headed by the author during the last 4 years, as part of the on-going effort of collecting, storing and analyzing information about breadth and depth of outreach. As was discussed in Section II (Chapter VI), this research department is separated from the regular operations, precisely in order to minimize staff biases as well as to protect client confidentiality. PCA methodology is indeed more statistically complex than other tools, but this dissertation is the positive proof that it is possible for MFIs to undertake the task on its own. PCA analysis may be complex but it has been proven as a methodologically sound approach. The necessary requirement may not be statistical sagacity but rather an honest desire to achieve the right tool for facilitating decision-making.

Regarding that the tool not being "specifically intended to guide MFIs in applying assessments results to their future program development" (Henry et al., 2003:3). Henry et al. also state that "any decision on how to use assessment results is left solely to the MFI and the donor" (2003:3). In fact, the data presented in this dissertation, and the corresponding research undertaken to date have focused on improving the quality of information on the poverty levels of clients and thus indeed geared towards improving decision-making. The aim of creating an internal research department within AMK was indeed, to inform decisions on a regular basis. Concretely, the main goals of the AMK in-house market and social research, as stated in its creation in 2003, were:

(i) to inform management decisions on new product design, on improving delivery procedures or other informational needs;
(ii) to complement financial information with social indicators in assessing institutional performance; and
(iii) to inform shareholders, possible investors and donors about identified transformation effects on clients.

The results of the AMK-PCA wellbeing score are indeed used for management and strategic decisions. This is because it is believed that accurate, timely and reliable information on the outreach performance of AMK can indeed guide its strategic planning. Gathering information through the right tools allows AMK management team to better understand its clientele and thus, apply useful (i.e. simple and reliable) information to their decision – making processes.

Finally, in relation to the tool not being meant to be used to assess the impact of microfinance services in the lives of clients, specifically the authors warned about using the tool as "means to target new clients nor to assess the impact of microfinance services on the lives of existing clients" (Henry et al., 2003:1). AMK-PCA wellbeing score will not used as a means to target new clients but it will be used as a means to assess the impact (or transformation effects) of microfinance services on the lives of existing clients. It is expected that the comparison of the levels in the wellbeing score between the clients and nonclients (i.e. the control group) over time will allow to assess if access to financial services (in this case microloans) allows households to overcome poverty or face internal and external crisis with better (and different) means, lowering their vulnerability to poverty. Of course the wellbeing score system can be

revisited in the future if it is estimated that the conditions have changed in rural areas. As Hulme argued in his paper on theory, experience and better practice on impact methodologies (2000) the central issue in impact assessment design is how to combine different methodological approaches so that it achieves a fit between its objectives, the institution context and financial and human resources constraints. It is believed that this internal assessment of depth of poverty as well as the future assessment of impact (or transformation effects on clients) provides an adequate level of scientific 'robustness' but is beneficial for AMK current decision-making and that will be remain beneficial for future strategic planning.

SUMMARY OF THE FIRST SECTION (THEORETICAL FRAMEWORK)

From this First Section, what interests us most for this dissertation is whether the poor are being reached by microfinance programs and how to best measure their participation. While Chapter I showed that the poor were excluded from the subsidized direct credit approach, Chapter II showed that the poor are being reached by MFIs. On the theoretical ground, microfinance (or more specifically microlending) defines a credit contract that reaches the poor by excluding the wealthy and better-off either directly by not allowing them to be eligible for the program or indirectly, by using a combination of the following mechanisms: (a) charging market-related interest rates that will discourage elite to attempt to capture the loans; (b) providing loans so small that only the poor will want them; and (c) adopting requirements that will force the rich to auto-exclude themselves, such as compulsory attendance at weekly meetings or contributions of physical labor. Secondly, on the ground of empirical evidence, Chapter II provided further evidence that microlending programs are reaching the poor and that their clients are clustered around the poverty line.

Once we have assessed that the poor are being reached by microfinance, Chapter III explored the theoretical framework of how to best measure poverty and vulnerability to poverty. The conceptual framework first reviewed the one-dimensional measures of poverty, both for monetary and non-monetary tools and provided three examples of this type of poverty assessment tools applied by MFIs: ACCION-Income Tool, the expenditures section of the FINCA-FCAT tool and the Housing Indexes. The main advantage of the one-dimensional tools is that they are absolute measures of poverty and thus are easily comparable. The main disadvantage, as the name says, is that they focus on a single dimension of poverty and thus, they cannot possible portray a full picture of the household status. The main conclusions of the experience in measuring poverty in microfinance clients, is that if a one-dimensional measure were to be chosen, a monetary tool would be preferred over a non-monetary one: this is because while they both share the main disadvantage, at least with monetary tools it is easier to compare the result with national and international data. Also, if one-dimensional monetary measure were to be chosen, a tool based on expenditure instead of income would be chosen, preferably if the information could be collected outside of the application process of the loan to reduce potential biases. In the case of (rural) Cambodia, any expenditure measuring tool would necessarily need to include the assessment of self-production.

The second section of Chapter III reviewed multidimensional tools, which were divided into participatory and indicator-based methodologies and presented the MFI experience to date in each category. The main advantage of multidimensional tools is that they can portray all the relevant dimensions of poverty. The main disadvantage is that they do so at the expense of loosing all the comparability in the results because they are often relative measuring tools. In the case of poverty assessment for microfinance clients, participatory methods have been excluded because, while they allow people themselves to define poverty and vulnerability, they offer the least versatile comparability of all the tools reviewed: they poverty levels in one village or MFI working area cannot be accurately compared with the poverty level of the neighboring village or MFI working area. The conclusion of the review of the indicator-based methodologies is that those that offer a statistically robust method of selecting indicators or weights would be preferred over other methodologies that assign weights or indicators arbitrarily. Finally, those methodologies that have been tested and can provide a record of results and costs in different contexts would also be preferred.

The bibliography review completes with the recent debate on subjective measures of welfare and the how to best measure vulnerability to poverty, both of which have not been tested within microfinance.

The conclusion of this literature review is to apply two different tools in order to assess poverty in microfinance clients: the relative poverty tool based on Principal Component Analysis (PCA) and the absolute poverty tool based on food expenditure per capita. The Third Section of this dissertation will show the results for the case of AMK, a microfinance institution operating in Cambodia. But first, the Second Section will provide a general overview of Cambodia, the historical context and the current economic and sociopolitical environment, the financial sector and microfinance in the country as well as an overview of AMK and Concern Worldwide, its shareholder.

SECTION 2 – NATIONAL, SECTORAL and INSTITUTIONAL CONTEXT

The Second Section discusses the environment of operations of AMK with the objective to provide a concise overview of the state of rural finance and the microfinance sector in Cambodia.

Chapter IV provides an overview of the historical context and the current economic and political environment in Cambodia, including its poverty profile. The last section of the chapter summarizes the main characteristics of the current Cambodian financial sector.

Chapter V delves into the size and nature of demand for rural finance and then describes the formal and informal finance sectors; the regulatory framework for MFIs and analyzes the main microfinance providers in Cambodia and their evolution over the last seven years from 2000 to 2006, both inclusive.

Chapter VI provides an overview of AMK, from its origins as a microfinance program of Concern Worldwide to its current status as an independent local MFI. The chapter provides a summary of Concern Worldwide and of AMK as institutions. The last section of the chapter provides an overview of the average client household and village, summarizing the profile of both.

Chapter IV - CAMBODIA: THE HISTORICAL CONTEXT AND THE CURRENT ECONOMIC AND SOCIOPOLITICAL ENVIRONMENT

This chapter provides a brief historical, political and economic overview of Cambodia and a poverty profile of a country where 35 percent of the total population lives below the poverty line and where 91 percent of the poor live in rural areas.

Historical, Sociopolitical and Economic Overview

Cambodia is a post-conflict country, rebuilding itself from the devastation of social, human, and economic resources and re-establishing the foundations for growth and development.[115]

The history of Cambodia can be traced into seven main political periods: The Khmer Empire (9th to 14th centuries); The French Protectorate (1863-1953); Cambodian Independent Rule (1953-1975); Khmer Rouge (1975-1979); People's Republic of Kampuchea (1979-1985); The State of Cambodia (1985-1993) and the Royal Government of Cambodia (1993 to present).

Modern Cambodia traces its origins back to the 3rd century CE[116] as the state of Funan, which absorbed considerable cultural influence from India. In the 6th century, Funan was succeeded by Chenla whose rulers can be identified as Khmer (Cambodian) predecessors of the later rulers of Angkor. The period of the great Cambodian empire lasted from the 9th century until 1431 when the Cambodian King left Angkor. During the height of the empire, its rulers built magnificent temples and extended their power over much of the territory of modern Thailand, Vietnam and Laos. Not being a commercial power, the empire declined slowly as the Thai challenged the authority of the ruler at Angkor in the 13th century; albeit Angkor was only abandoned in the 15th century. The first recorded visit to Cambodia by a European is dated 1555: Father da Cruz, a Portuguese priest. Portuguese and Spanish missionaries returned to Cambodia in the 1580s, 1593-1599; and Portuguese and Spanish buccaneers (led by Blas Ruiz and Diego Veloso) played an active role in Cambodia's royal politics. Cambodia was

[115] The historical and political review draws on Shawcross (1991); Thion (1993); Kamm (1998); Chandler (1999); and Osborne (2000 and 2002).
[116] CE stands for "*Common Era*" and replaces AD ("*Anno Domini*").

still an important regional power in the mid-17th century, but from that time onwards until the early 19th century, it almost ceased to exist as Thai and Vietnamese power grew stronger.

By the time France established a protectorate over it, in 1863, Cambodia was a small impoverished kingdom. Cambodia became part of French Indochina in 1887 and France gradually assumed more control over the kingdom's affairs but leaving the king (and his symbolic importance for the Cambodian population) in place. By the beginning of the Second World War, the French in Cambodia had stirred modest economic development (notably rubber plantations and exports of rice) but had placed little effort on expanding education. For instance, by the end of 1930s, fewer than 12 Cambodians had completed a full high school education.

The French placed Norodom Sihanouk on the throne in 1941 with the expectation that he would be a cooperative figure. However, by the beginning of the 1950s Sihanouk had become the leader of the Cambodian push for independence. Following the Japanese occupation in World War II, Cambodia became independent within the French Union in 1949 and fully independent from France in 1953.

Sihanouk became the dominant figure in Cambodia until the late 1960s; even abdicating from the throne in 1955 to become a full-time politician. By the late 1960s, the country was in economic decline, with little place for disagreement with Sihanouk's politics from left-wing supporters. Ironically, Sihanouk's removal from power came not from the communist wing but from his own right-wing supporters who became alienated by his dealing with the North Vietnamese communists and toppled him in a coup d'état. Through this coup d'état, Cambodia became involved in the Vietnam war (as the US tried to buy time for the withdrawal of its forces from Vietnam) and eventually a full-scale civil war broke as left-wing groups started their resistance with the ultimate objective to gain power. Cambodia's civil war lasted until 1975 with the victory of Pol Pot regime.

In 1969, the United States begun secret bombings of the sanctuaries installed by the Vietnamese communists along the Cambodian side of the border between the two

countries.[117] In 1970 (during the Lon Nol regime) both the Vietnamese (North and South) and the US troops increased their fighting into Cambodian territory. The bombings and the US-backed coup of Lon Nol encouraged the growth of the Khmer Rouge. By October 1970 the Khmer Rouge forces had occupied half of the Cambodian territory; in 1971 Lon Nol declared a state of emergency and by 1972 all legitimate political opposition was eliminated. The United States and North Vietnam violated the agreement they had signed in 1973 to end military action in Cambodia and fighting continued within Cambodian territory. When the United States congress ordered a halt to the bombing in Cambodia (August 1973), Lon Nol's army was left to fight the Khmer Rouge by itself. From 1973 to 1975, the Khmer Rouge dominated most of the countryside and in April 1975 they completed their victory by capturing Phnom Penh.

From 1975 to 1979 the Khmer Rouge regime and its leader Pol Pot ruled Cambodia with the aim of turning the country into large self-sufficient agricultural communes. The Khmer Rouge regime drove the population out of the cities and towns, abolished money, markets and prohibited all private property, western medicine, education and religious practice. Its four years of rule resulted in the death of at least hundreds of thousands (estimates range as high as two million) of Cambodians by arbitrary execution (estimated at five hundred thousand), torture, starvation, exhaustion from overwork and denial of medical care. During that time, the renamed Democratic Kampuchea remained almost completely closed to foreign visitors and it took a long while until the outside world came to learn of the atrocities of the Khmer Rouge regime led by Pol Pot.

In 1978 the Vietnamese started the invasion of Cambodia and captured Phnom Penh in 1979, but Pol Pot and the Khmer Rouge forces escaped to the Thai border -where they established themselves with Chinese and Thai support under the benevolent eyes of the United States and the West in general. The Vietnamese installed a communist puppet regime of Khmer Rouge defectors and named the country the People's Republic of Kampuchea. In addition to the Khmer Rouge, two additional resistance forces settled along the Thai border: The Khmer People's National Liberation Front (KPNLF) and National United Front for an Independent, Neutral, Peaceful and Cooperative Cambodia (FUNCINPEC, for its French acronym). These

[117] See Shawcross (1991) for a detailed account of the Nixon administration decisions regarding Cambodia in the 1970s.

three groups organized the displaced Cambodia population into camps along the Thai border.[118]

Ironically, while the Vietnamese invasion stopped the Pol Pot tyranny, it also transformed the country in yet another key element of the Cold War tyranny: neither China nor the then member of ASEAN[119] accepted the regime installed by the invasion. In fact, it was not until the Cold War ended (following the collapse of the Soviet Union at the end of the 1980s) that a solution for Cambodia could be sought. By 1985 Vietnam started withdrawing and in 1989 the last Vietnamese troops left Cambodia while the country was renamed State of Cambodia.

In October 1991 seventeen nations and all four Cambodian factions signed in Paris an "Agreement on a Comprehensive Political Settlement of the Cambodia Conflict." The UN-sponsored settlement provided for an end to the fighting, disarmament of all the factions (Phnom Penh government, the Khmer Rouge and other anti-Vietnamese forces) and the creation of a "neutral political environment conductive to free and fair elections." The United Nations Transitional Authority (UNTAC) was established with civilian and military components to implement the agreement and to organize free elections. A constitutional monarchy was established in Cambodia in 1993 with King Norodom Sihanouk as the head of state. Cambodia's first national elections were held in 1993, and subsequent elections were held in July 1998 and July 2003.

FUNCINPEC party won the UN-supervised 1993 elections with 45 percent of the vote,[120] but the elections resulted in a coalition government of the Cambodian People's Party (CPP, the previously ruling party) and FUNCINPEC (with two simultaneous Prime Ministers). This coalition ruled until 1997 when the CPP leader (Hun Sen) staged a coup d'état against all his opponents, allegedly pre-empting FUNCINPEC's planned coup.[121] The national elections in 1998 eventually brought in another coalition government between the CPP and

[118] The division of the Cambodian population between those living in the border camps and those living inside the People's Republic of Kampuchea set the conditions of how multilateral organizations and NGOs provided emergency aid during the following decade.
[119] The members of ASEAN were then: Indonesia, Malaysia, Philippines, Singapore and Thailand.
[120] See Frieson (1996) for an analysis of the positive and negative impacts of UNTAC on the political patronage system and how it influenced that 90 percent of Cambodian electorate turned "to vote in what was perhaps the most democratic election in Southeast Asian history" (1996:225). Frieson defines patronage as a social and economic system of relationships between patrons and clients (1996: 240-241).
[121] Unauthorized imports of weapons for FUNCINCEP units were intercepted and attempts to negotiate with would-be Khmer Rouge defectors became known.

FUNCINPEC, with Hun Sen as Prime Minister. In February 2002, the first ever-local level elections (commune/sangkat councils) gave a new victory to the CPP. The last national elections were held in July 2003; however none of the parties won the two-thirds majority required to govern alone and the new coalition government was not formed until July 2004 due to differences among political parties. The coalition remained of the same two parties (CPP and FUNCINPEC), with Hun Sen as the Prime Minister. Hun Sen has been Cambodia's Prime Minister (sole Prime Minister, coequal Prime Minister or second Prime Minister) uninterruptedly for over 22 years, from 1985.[122] The next national elections are scheduled for July 2008.

In addition to the elections, the three most important political developments of the early 21st century include: Cambodia's entry into the World Trade Organization (ratified by parliament in August 2004); the abdication of King Norodom Sihanouk in October 2004 and the selection of his son Prince Norodom Sihamoni as his successor; and the creation of a special tribunal to trial senior Khmer Rouge officials on charges of genocide (agreed between the UN and Cambodia in March 2003, with a funding arrangement in April 2005 and the first indictment by prosecutors in July 2007, who charged Kang Kech Iev with crimes against humanity).

According to the World Bank report on Poverty Assessment (2006, drawing on Hughes (2003)) Cambodia has been undergoing a threefold transition from the late 1980s: from war to peace; from a one-party to a multi-party politics; and thirdly, from economic dirigisme and isolation to markets and integration. During the last fifteen years Cambodia has rebuilt itself from decades of social, human, and economic devastation and the original reforms aimed at restoring social and economic infrastructure and soldier demobilization have slowly given room to reforms for reducing poverty. The overarching goal of the three governments since 1993 has been securing peace (alongside with political stability and cooperative international relations) and as such, a deliberate focus on reducing poverty or on more pro-poor policies to sustain or increase the rates of poverty reduction of the last decade becomes the main challenge of the coming years (2006:16).

[122] Albeit the count should start in 1993 if the term Prime Minister only refers to an election result.

According to the last population census in 1998, the population of Cambodia was 11.4 million people, comprising 2,188,663 households with an average household size of 5.2. Most recent estimates set Cambodia's population at 14.4 million people in 2006, with 85 percent living in rural areas and 15 percent in urban areas and an overall population density is 82 people per square kilometer (although there are wide variations among provinces). The population is growing at 2 percent per year, and about 38 percent of the population is under 15 years old and 60 percent are under 25 years old (Cambodia Inter-Censal Population Survey 2004). Poverty is much higher in rural areas than in Phnom Penh and other urban areas and income inequalities between urban and rural areas continue to be high. Over ninety percent of the Cambodian poor live in rural areas, where they rely heavily on weather-dependent agricultural employment. Currently, the 181,035 Km2 of Cambodia are divided into 24 provinces (20 provinces and 4 municipalities), 185 districts, 1,628 communes and 13,910 villages. Please refer to Annex 7 for a table with the key facts of the Cambodia country profile.

Economic overview[123]

Cambodia enjoys relatively favorable geographic conditions for development. Soils are not particularly good and the hydrological regime is complex, but it has a deep water port, plenty of flat cultivable terrain, productive freshwater fisheries and a considerable stock of timber. It has great potential for tourism and most importantly, it is located in a fast growing region with land borders that allow it access to markets in Thailand and Vietnam. Thus, Cambodia's contemporary poverty is due primarily to the almost three decades of conflict (WB: 2006:1).

With the exception of the years following the Asian financial crisis (1997-1998), Cambodia has enjoyed sustained economic growth since 1993, averaging over 9 percent since 2000 and accelerating in recent years (10.75 percent in 2006). However, growth has been narrowly based on the urban-centered garment and tourism industries (mainly in the capital Phnom Penh and its peripherals, and the tourist towns of Siem Reap-Angkor and Sihanoukville) and

[123] Unless otherwise indicated, this chapter draws mostly from the following sources: IMF (2007a, 2007b, 2006a, 2006b), the Economist Intelligence Unit (2002); UNCTAD (2006); UNDP (2007/08 and website), UNFPA (2005 and website); UNICEF (2002 and website); World Bank (2006a, 2007, website); World Development Indicators website; and the CIDA website on Cambodia.

the rural-based and agricultural sector has only started making a sustained contribution in recent years (agriculture grew at only 3.3 percent per year on average during 1993-2004).

Regarding economic activities, as of 2005, Cambodia's agricultural sector (inclusive of crops, livestock, forestry and fishery) employs about 59 percent of the workforce and over 63 percent of the poor gain their livelihoods from agriculture. Paddy rice is by far the most common crop: about 2.16 million hectares or about 90 percent of the total cropped area of 2.42 million ha is planted for rice (CEA: 2006:37). Despite this, agriculture accounts for only 34 percent of the total economy. The services sector accounts for 39 percent and the industrial sector for 27 percent of the Gross Domestic Product (GDP) and employ only 27 percent and 13 percent of the labor force respectively. Annual per capita income in 2006 was approximately USD 480 (GNI per capita, Atlas method)

Economic growth has been supported by continued expansion of exports, especially of garments, which constituted over 90 percent of total exports of merchandise (EIC: 2007: 6), construction and tourism, low inflation and stable exchange rates. Tourism has substantial development potential, but the risks in the export industry are high. In 2004, the garment industry contributed 15 percent to GDP and employed 325,000 workers but the sector is highly concentrated with virtually all outputs exported to the European Union and the United States (70 percent and 22 percent of garment exports respectively, EIC: 2007:6). According to UNCTAC (2007), Chinese investment in garment manufacturing amounted to 40 per cent of total foreign direct investment in Cambodia and exports of garments accounted for 64 per cent of the Generalized System of Preferences (GSP) in 2004 (a sharp rise from 3 per cent in 1995). While prospects for the garment industry looked bleak at the end of 2004 when the United States favorable quotas system ended, new quotas by the US and the European Union by mid-2005 have propitiated further growth. However, the recent accession of Vietnam to the WTO and the prospect of safeguards measures on China being lifted have been identified as potential threats for its future competitiveness. In fact, while the garment industry accounts for 72 per cent of manufacturing value added, it has not been accompanied by a corresponding development of the companies' technological capabilities: skill intensity levels are extremely low for wages not that much lower than those found in China.

In addition to the garment industry, recent exploration suggests that Cambodia could have significant offshore oil and gas resources in its territorial waters (provisional estimates

account for 400-500 million barrels of oil and 2-3 trillion cubic feet of gas). As stated by the IMF, extractive industries based on oil production could significantly increase national income and provide vital financing but there is still considerable uncertainty over its scale and timing. In addition, the are potential policy challenges: the "oil curse" of absorbing large increases in money and fiscal revenues with weak institutions and capacity as well as the risk of high inflation (particularly because of the dollarization of the economy and the immature banking system). Reaping the benefits while avoiding economic problems would depend, in particular, on sound fiscal policies (2007b:3-12).

The informal sector, small enterprise, trade and services activities have also expanded significantly and are employing part of the labor force that other sectors cannot absorb. Development of the private sector is constrained by limited and high-cost infrastructure, uncertain access to land, limited access to credit, a weak and unpredictable regulatory framework, and a corrupt and unreliable judicial system. The Royal Government of Cambodia (RGC) continues its efforts to encourage private initiative and create basic infrastructure (roads, energy, water resources, potable drinking water, etc.). Progress has been made on structural reforms in the fiscal and financial sectors, but legal and judicial reform progress has been much slower: the draft anti-corruption law was halted pending review of the penal code, the Anti-Money Laundering and Counter Financing of Terrorism Laws passed but drafts of the Insolvency Law and the Law on the Status of Judges and Prosecutors are still being debated at Ministry level (IMF:2007a: 9). Other long -awaited laws include the Law Establishing Commercial Courts; Secured Transaction Law; Commercial Contract Law and the Civil Code, and the Criminal Code (EIC, 2007: 53).

Fiscal performance, domestic revenues and public expenditure management have improved, but the ratio fiscal revenue to GDP remains quite low (about 12 percent). In 2005, Official Development Assistance (ODA) and official aid amounted almost USD 538 Public debt (which is almost entirely external[124]) amounted to 33 percent of GDP at end-2006 but is considered "sustainable, although with a moderate risk of distress" by the IMF (2007a: 12). Defense and security expenditures have been progressively reduced in recent years to boost the health and education sectors, although the geographic coverage of the latter two sectors has been regarded as insufficient.

[124] In addition to debt to multilateral sources (such as the ADB, IMF and WB), there is also a substantial percentage of debt owed to the Russian Federation and United States (EIC, 2007:24).

According to the World Bank, in order to accelerate poverty reduction there is a need for more pro-poor and rural-focused sources of growth. But in order to unleash the potential in agriculture and agribusiness sectors, critical constraints must be eased. In the agricultural sector, the primary binding constraint is insecure property rights. The lack of secure land tenure inhibits investment because expected private return are not guaranteed to be appropriable. The second-order constraints are weak infrastructure (especially irrigation) [125] and low human capital (which reduce returns to investment for society as a whole). In the agri-business sector,[126] the primary binding constraint is weak governance. Excessive unofficial fees either prevent profitability or render private returns too uncertain, and because unofficial fees tend to rise exponentially with the scale of the operation, they inhibit expansion and growth. Access to credit and the cost of credit are second-order binding constraints (WB, 2006a:55). Also, according to EIC, the proliferation of land grabbing and land concentration threatens the livelihood of the poor and the country's stability and viable land redistribution have to be in place to cope with the population explosion (2007: 69).

In April 2007, Cambodia was rated by Standard and Poor's. The country received a long-term foreign currency rating of B+ (stable) and a local currency rating of B. The rating is four notches below investment grade and puts Cambodia on par with Pakistan and Mongolia, above Papua New Guinea and Fiji but below all other South East Asian nations. Moody's also assigned its first-ever sovereign rating to Cambodia: the long-run foreign currency rating and the local currency government bonds were placed at B2 (also stable), which is five notches below investment grade. Standard and Poor's advised that a rating upgrade would require Cambodia to reduce barriers to investment and improve the government's revenue-raising measures. Potential reasons for a rating downgrade include fiscal slippage, reduced donor support because of a departure from current prudent macroeconomic policies or a change in debt management strategy (Dean, 2007: 7).

[125] In Cambodia only 7 percent of arable land is irrigated, well below the 20-30 percent range in most neighboring countries (WB, 2006a:60).
[126] Agribusiness in Cambodia consists of tens of thousands of micro-enterprises, a few hundred SMEs and only a handful of companies with more than 100 employees. Only about 1-1.5 percent of the labor force is engaged in agribusiness, with the average microenterprise consisting of 2-3 workers. Among SMEs, rice milling is the most common activity (WB, 2006a:64).

Vulnerability also remains. According to the IMF, if recent land price hikes and real estate speculation were to reverse, the growing confidence in the banking system could erode.[127] Given the dollar denomination of almost all loans and deposits, currency mismatches are not a major concern but many banks are exposed to a single sector and, in some cases, a few large customers (IMF, 2007a:15). In fact, the rapid growth in foreign currency deposits is concentrated in a few banks catering for particular segments of the market and credit is similarly concentrated and almost entirely collateralized against the booming real estate market. Credit seems to be also financing real estate and construction investment. According to the NBC, the non-performing loans remain below 10 percent, but there are some concerns as to the quality of asset classification (2007a:15).

At the first Cambodia Development Cooperation Forum[128] in June 2007 under the theme "Progress in Implementing the National Strategic Development Plan 2006-2010" aid pledges by the international donor community totaled USD 689 million in aid and loans for Cambodia in 2007[129] (Xinhua, 2007).

Poverty Profile

Despite significant progress on many fronts, Cambodia still faces formidable challenges. Overall poverty has declined markedly –from 45-50 percent (47 percent is the point estimate) in 1993 to 35 percent in 2004- but with a rise in inequality and poverty remains "uncomfortably high in rural areas" (IMF 2007a: 1). Poor governance has been repeatedly pointed as one of the main weakness: corruption is endemic and human rights problems continue. Land grabbing and illegal logging with damaging economic, social and environmental effects are widely reported (IMF, 2007a: 4).

[127] The fiscal impact would be limited because the state is not involved in the banking sector but the NBC's international reserves would be at risk (2007a:11)
[128] The Cambodia Development Cooperation Forum (CDCF) is the new format for the previous Consultative Group meetings. The meetings are co-chaired by the World Bank and the Royal Government of Cambodia (RGC) and include development partners. They provide a joint overview of the developments in the country as a whole touching all sectors and for pledging and commitment of development aid.
[129] Cambodia received USD 594 million of international aid in 2006 and USD 610 million in 2005. Note that international aid levels have remained high throughout the decade, for instance Cambodia received USD 556 million in 2001 and USD 548 million in 2000.

According to the diary estimated of poverty using CSES 2004, income inequalities both between urban and rural areas continues to be high. Poverty in Cambodia is overwhelmingly a rural phenomenon. Of the country's total number of poor more than 91 percent live in rural areas compared with 9 percent living in Phnom Penh and other urban areas (of which, 8 percent in other urban areas and barely 1 percent in Phnom Penh) (RGC,2006:xi).[130]

Measuring poverty in Cambodia

The World Bank estimates the international (dollar-a-day) poverty line in 2004 at R 1,382 per capita per day (or USD 0.34 in 2004 current prices).[131] The same report advocates for the use of the national poverty line instead of the dollar-a-day international poverty line. While the international poverty line is invaluable for rough comparisons between countries and over time, "for the purposes of national level analysis it is preferable to use a national poverty line constructed following accepted international principles and with reference to a country-specific consumption bundle" (World Bank, 2006a:38).[132]

Monetary values of the poverty lines vary from time to time and region to region depending on economic situation, i.e. the values of poverty lines in rural areas are generally lower than in urban areas reflecting different level of cost of living. The Cambodian food poverty line allows a person to consume a food basket that provides at least 2,100 calories of energy per day, based on the quantities of foods consumed by persons in the third quintile of the per capita consumption distribution (WB, 2006a:20). The overall Cambodian poverty line also includes a small allowance for non-food items such as shelter and clothing. Generally, two poverty lines can be drawn: the Food Poverty Line (FPL) and the Overall Poverty Line

[130] These figures are based on the recall estimates, when based on diary estimates: 93.4 percent live in rural areas (i.e. 4.4 million) while only 6.6 percent live in Phnom Penh and other urban areas (barely 15,000 in Phnom Penh and 0.3 million in other urban areas) (RGC,2006:vii). Estimates based on recall data are preferred because they have been used to construct the Cambodian poverty line.

[131] Absolute poverty line is defined as USD 1 a day at 1985 international prices (equivalent to USD 1.08 at 1993 international prices), adjusted for purchasing power parity (PPP). This absolute poverty line of USD 1 a day ppp is used to compare poverty across countries.

[132] Comparisons across countries are problematic because of the consumption of non-market goods. The local market value of all consumption in kind (including consumption from own production which is particularly important in developing rural economies) and the imputed profit from production of non-market goods should be included in the measure of total consumption or income. (This is not always done; most of the surveys undertaken after the 1980s include valuations for consumption or income from own production but valuation methods are not homogeneous e.g. price in the nearest market, average farm gate selling price, etc.)

(OPL). The FPL does not provide allowance for non-food consumption. Because of the lack of inflation figures for rural areas and baseline inflation data for 1993, the World Bank updated the food poverty line to 2004 applying the average annual rates of inflation in food prices in rural areas, i.e. using food price inflation in Phnom Penh (weighted by the reference 1993/94 food bundle) and household survey data to estimate regional differences in food prices. At the same time, the 1993/94 baseline food prices are median values calculated from household responses on the value and quantity of foods consumed.[133]

Table IV-1 below shows the monetary values of the national poverty lines for different regions in Cambodia, with the overall Cambodian poverty line for rural areas set at R 1,753 and the Cambodian food poverty line for rural areas set at R 1,389 in 2004.

Table IV-1: Cambodian Poverty Lines

	Cambodian Food Poverty Line (FPL) 2004	Non-Food Allowances 2004	Total Cambodian Poverty Line 2004[134]	
	Riel (per capita per day)	Riel (per capita per day)	Riel (per capita per day)	Current USD (per capita per day)
Phnom Penh	1,782	569	2,351	USD 0.59
Other Urban	1,568	384	1,952	USD 0.49
Rural	1,389	364	1,753	USD 0.44

Source: World Bank (2006a: 21) and RGC (2006: ix), both based on CSES 2004

Poverty Trends: The Evolution of Poverty in Cambodia

It is difficult to assess the evolution of poverty and poverty trends in Cambodia. This is because the socio-economic surveys conducted in Cambodia are not entirely comparable for many reasons. The Cambodian Socio-Economic Survey (CSES) is the equivalent of the LSMS and becomes the main source for poverty reports in the country. Five surveys have

[133] Concretely, updating the food poverty line to 2004 involved three steps. First, CSES 2004 data on village food prices were used to estimate the percentage increase in the cost of the reference food bundle in each region using quantity weights of the 1993/94 reference food bundle (which is composed by 155 food items and was used to build the poverty line). Second, the consumer price index data on Phnom Penh food prices were used to obtain a second estimate of the percentage increase in the cost for the reference food bundle in Phnom Penh (using the same quantity weights from the reference food bundle rather than the CPI weights). Third, estimates obtained in the first step for all regions were adjusted using the ratio of the CPI price estimates to village price estimates for Phnom Penh. Further information is available in Knowles 2005 (RGC, 2006: 34-35).

[134] Poverty Lines in 1994/94 and 2004 have been based on recall estimates (and not on diary estimates, which are only available for 2004 CSES)

been conducted by the National Institute of Statistics (NIS) of the Ministry of Planning: these took place in 1993/94, 1996, 1997, 1999 and 2004. The latest one was actually conducted between November 2003 and January 2005 covering a sample of 15,000 households, but is commonly referred as the CSES of 2004. Data from the surveys is not directly comparable because of the following reasons:

- The 1993/94 CSES covered only 59 percent of the villages and 65 percent of rural households on the country due to security problems at that time. (These excluded areas were the remote areas where the Khmer Rouge were still active and/or forested highlands along the south-western, eastern and northern borders of the country, where fewer people lived but where poverty was presumably higher (WB, 2006a: 29)).
- In subsequent surveys, the coverage progressively increased.
- The 2003/04 CSES is first survey based on a sampling frame that covers the entry country drawing from the first population census conducted in 1998.

The estimates of poverty are not directly comparable because in different surveys the sampling frame was expanded over successive years and the design of the survey and the timing of implementation also changed.[135] In addition, the 1993/94 CSES only collected consumption data through recall method (and not diary estimates)[136]. Thus, poverty trends

[135] The 1996 survey presented seriously underestimated household consumption because food consumption data was collected as a single category "total consumed during last week." The 1997 survey took place only on one round coinciding with the 1997 political crisis and there are good reasons to believe that households were cutting back on consumption in anticipation of a political turmoil. The consumption data of the survey 1999 is not reliable because of the irreconcilable differences in estimates from the two rounds (the standards of training and supervision of the first round were inadequate resulting in under-recorded consumption and exaggerated poverty while results from the second round show much higher consumption and much lower poverty estimates) (WB, 2006a: 19).
For instance, statistical estimates of the poverty headcount indices by region for 1993/94, 1997 and 1999 available before the poverty assessment of 2006 provided the following irreconcilable figures:

	1993/94		1997 (Adjusted)		1999 (Round 2)		1999 (Both Rounds)	
	OPL	FPL	OPL	FPL	OPL	FPL	OPL	FPL
Phnom Penh	11.4	6.2	11.1	3.4	9.7	3.3	14.6	5.2
Other Urban	36.6	19.6	29.9	15.4	25.2	13.7	42.4	28.4
Rural Areas	43.1	21.9	40.1	20.0	40.1	12.1	56.1	31.5
Cambodia	39.0	20.0	36.1	17.9	35.9	11.5	51.1	28.9

Note: OPL: Overall Poverty Line and FPL: Food Poverty Line
Source: A Poverty Profile of Cambodia 1999 and A Poverty Profile of Cambodia 1997 (MOP)

[136] The main differences in 2004 CSES between diary and recall estimates are the following:
(i) diary estimates are based on the food basket and non-food allowance of the second quintile in the distribution of household consumption per capita while the recall estimates are based on the consumption of the third quintile;
(ii) diary estimates use adult equivalent scale to make households comparable across differences in size and composition while recall estimates are based on per capita terms;
(iii) diary estimates adopt comprehensive price indexes at the household level for food based on unit values instead of using village prices as in recall estimates;
(iv) diary estimates use house rents which are adjusted for quality differences through hedonic regressions;

can only be properly assessed between 1993/94 CSES and 2003/04 CSES in those areas that are comparable, i.e. from the same geographical areas that were included in both (RGC, 2006: vi-vii).[137]

The World Bank Poverty Assessment in 2006 attempted to fill in these gaps. The main conclusion of the report is that poverty in Cambodia has dropped from 39 percent to 28 percent in 10 years *in accessible rural areas*, that is in the geographically comparable sampling frame. The report also (re)estimated the all-Cambodia poverty headcount in Cambodia as a whole in 1993/94 at 47 percent (back-projected). This figure was compared with the 35 percent (measured) poverty headcount in 2004 to assess that indeed poverty had fell in Cambodia in the 1993/94 to 2003/04 decade. However, given the imprecision of the estimate, the report states that it is safer to state that the all-Cambodia poverty rate in1993/94 was somewhere between 45-50 percent and thus, poverty in Cambodia fell by between 10 to 15 percent between 1994 and 2004. (WB, 2006a:17).

However, while poverty reduction has been experienced across the population, the rates of improvement have not been uniform. The standards of living of the rural population grew at the lowest rate and inequality has increased most notably *within* the rural population. (WB, 2006a:17). In fact, according to the World Bank's Sharing Growth: Equity and Development Report (2007) the Gini coefficient[138] rose from 0.35 in 1993/94 to 0.40 in 2004 within the geographical comparable sample. The Gini coefficient for the whole national population in 2004 was 0.42. In 2004, the living standards of the poorest fifth of the population were only 8 percent higher than they were a decade earlier while the living standards of the richest fifth rose five times as fast, at 45 percent. Similarly, rural living standards rose more slowly than those in Phnom Penh and other urban centers (2007: iii). While the quality of the data from the CSES 1997 if often questioned (see footnote 135), the report assets that rural inequality widened considerably from 1993/94 to 1997 while from 1997 to 2004 inequality remained unchanged. [139] However, in urban areas, inequality remained stable throughout (WB, 2007:

(v) diary estimates adopt 'use value' based on depreciation of durables in possession of households instead of value of purchased durables in the last 12 months as in recall estimates (RGC, 2006:vii).

[137] In fact, until 2004 it was not even possible to compare data between 1993/94 CSES and 2003/04 CSES within the same geographical sampling areas because the description of the sampling framework from 1993/94 had been lost. In 2004, it was rediscovered, allowing for trends to be estimated from 1993/94 to 2004.

[138] In this common measure of inequality zero indicates prefect equality and one perfect inequality.

[139] Except for the richest 7 percent of the population, the entire rural population experienced only sluggish growth in consumption. Even households at the 75th percentile only gained 20 percent while those at the 93 rd percentile grew a mere percent. By contrast the richest end of the distribution growth was 40 percent. (WB,

iv-v). Rising rural inequality was mainly the result of rising inequality within the richest quartile (WB, 2007: 24). Inequality *within* rural populations seems to reflect the interaction of three main factors: geography, household's capital endowments and local governance. Geographic factors imply that the incidence of poverty is higher and mean consumption levels are lower in remote villages with difficult road access/connectivity. Differential initial stock of physical capital (land and other productive assets) and human capital (education and health status) have promoted the disparity among rural households (WB, 2007: vi). For instance, land ownership is highly concentrated: in 1989 land was privatized and distributed based on the size of the household, resulting in a highly equal distribution and effectively zero landlessness. By 2004, 5.7 percent of the rural population was both landless and poor, and Cambodian land distribution is among the most unequal in Asia.[140] Similarly, wealthier rural households have found it easier to navigate unaccountable local governance structures, through social connections or simply greater capacity to pay bribes (WB, 2007: vii).

In the UNDP Global Human Development Report 2007/08, Cambodia ranks 131st out of 177 countries in the Human Development Index (HDI),[141] the third lowest value in South East Asia[142] after Timor-Leste and Myanmar. The HDI value (which refers to the year 2005) is 0.598. This results from life expectancy at birth of 58 years; an adult literacy rate of 73.6; a combined primary, secondary and tertiary gross enrolment ratio of 60 percent; and a GDP per capita (ppp) of USD 2,727. This level of HDI ranks Cambodia in the 47th place from the bottom while still remains as one of the 50 least developed countries designated by the United Nations. Likewise, Cambodia's Human Poverty Index (HPI)[143] is 38.6 and reflects the high level of mortality and child malnutrition as well as the poor availability of public services in the country and ranks 85th among 108 developing countries for which the index has been calculated. Women continue to face additional constraints, as shown by with a

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2007:21). Between 1993 and 1997 only the top three percent of the rural population enjoyed growth in real per capita consumption exceeding 20 percent (WB, 2007:23),

[140] The gini coefficient of land ownership is 0.65 in Cambodia; 0.55 in India; 0.51 in Malaysia; 0.49 in Indonesia and 0.41 in Thailand (WB, 2007:x). Note that a value of zero indicates prefect equality and a value of one indicates perfect inequality.

[141] HDI: Composite measure of longevity, educational attainment, and standard of living.

[142] Southeast Asian countries are: Brunei; Cambodia; Indonesia; Laos; Malaysia; Myanmar; Philippines; Singapore; Thailand; Timor-Lesté; Vietnam. All of them are members of the Association of Southeast Asian Nations (ASEAN), except Timor-Lesté, which is a candidate.

[143] HPI measures deprivation in three essential elements of human life: longevity, knowledge and a decent standard of living.

Gender-related Development Index (GDI)[144] score of 0.594, representing rank 114 for the 157 countries with GDI values.

At the end of 2005, Cambodia had the highest HIV/AIDS prevalence rate in South East Asia: 1.6 percent of the adult population (15 to 49 years). Programs promoting 100% condom use have enjoyed some success with reduced HIV prevalence amongst brothel-based sex workers (from 43 percent to 29 percent between 1998 and 2002). Because of the traditional tolerance of prostitution, promotion of condom use in commercial and causal sex has been effective but it is harder to promote condom use by married couples. Husband to wife and mother to child HIV transmission are becoming increasingly common in Cambodia (WB, 2006:42). In June 2007, the Government of Cambodia announced a decline in the HIV prevalence in Cambodia with an official prevalence rate of 0.9 percent.[145] However, this figure is higher than the estimate of the 2005 Cambodia Demographic and Health Survey (CDHS 2005) which is a household survey and thus likely to exclude people from various population groups at higher risk of HIV infection (RCG-MoH: 2007). HIV/AIDS still poses a major threat to Cambodian development.

Finally, food security is threatened by low agricultural yields and the limited access to land (especially for the poorest) and Cambodia is regularly hit by floods, droughts and other natural disasters.[146]

Regarding gender issues, the literature has often stressed the "relative equality" in the relations between men and women in Cambodian society and women enjoy a higher status and greater independence than women in India or China.[147] However, gender inequalities continue in certain aspects of social, economic and political life (WB, 2006a: 42). In addition, over two decades of war and civil strife have placed extraordinary strains on the

[144] GDI is similar to the HDI but additionally takes into account the degree of gender inequality in life expectancy, educational attainment, and standard of living.

[145]. There were two sources of HIV prevalence data: the HIV Sentinel Surveillance (HSS) from 1996 through 2006 and the Cambodia Demographic & Health Survey (CDHS) 2005. The HIV prevalence in the general population aged 15-49 years in 2006 was higher in urban areas than in rural areas. (The last official HIV prevalence estimate was 1.2% in 2003.)

[146] The agriculture sector had negative growth due to severe floods in 2000 and to severe drought in 2004 and 2005 (WB, 2006a:58). The weather conditions in 2006 were considered as favorable as those in 2005. Cultivated areas kept increasing even though some places were flooded by the rains. As a result, during 2006, paddy value added increased slightly by about 1 percent compared with a 43.6 percent increase in 2005, and that of other crops also continued to grow, at a slower rate of about 5.7 percent compared with 15.9 percent in 2005 (EIC, 2007: 4).

[147] Most notably Ledgerwood, 1992, 1996 and 2005.

status of women in Cambodia and nowadays they have a heavier workload than in the past. For instance, the current women's "triple burden" (reproductive, productive and community roles) now also includes non-traditional work such as ploughing and climbing sugar palm trees or as migrants for paid-employment. Also, the conflict legacy of an unbalanced adult sex ratio (with more adult women than men because more men died during the wars) has been also identified as one of the factors behind the high rates of violence, including domestic violence, rape and marital rape. Women's representation in legislative and executive bodies, local governments, management, and professional occupations remains very low.

The analysis of consumption poverty data of 2004 CSES does not show female-headed households to be any poorer that those headed by men, but other studies have shown that certain types of female-headed households suffer particular economic disadvantages (WB, 2006a:42). In fact, the CDRI participatory study found that most female-headed households were poor or destitute and there were also more likely to move into poverty than other households, particularly those headed by widows or divorced women with small children (FitzGerald, 2007: 130-132).

Another key finding of CDRI's participatory study is the relationship between livelihood strategies and participation in education. While income is the major factor in school retention (with middle and rich income families more likely to keep both boys and girls in school), families of all income levels will be more inclined to pull their daughters rather than their sons from school in order to help with domestic work and earn an income[148] (FitzGerald, 2007: 143-144).

Finally, women continue to be concentrated in low-wage, low- income economic sectors and are paid less than men for the same work. The growth of the garment industry has benefited mainly women (who comprise over 90 percent of the workforce in this sector) but remains a small percentage of the overall workforce. Also, garment workers transfer a large percentage of their earnings to their families, even at the cost of their own current consumption (WB, 2006a:42).

[148] Exceptions are noted in fishing villages where boy's labor is seen as more valuable and girls are able to stay in school.

In 2007, CDRI produced a report on trends in community well-being and household mobility in nine Cambodian villages commissioned by the World Bank entitled "*Moving Out of Poverty?*" (FitzGerald and So et al.). The longitudinal study applied both qualitative and quantitative methods for identifying upward or downward poverty mobility. Conducted in 2004/05, it revisited nine rural villages where CDRI had previously conducted research.[149] The *Moving Out of Poverty Study* provides a local perspective on national poverty studies by validating national trends with local data, explaining national trends from the perspective of the poor and providing insights that are not captured by national studies. For instance, the report shows similar rate of growth, but a slower rate of poverty reduction and higher poverty rates than provincial averages reported in national studies. This suggests that when measures other than consumption are taken into account, rural inequality is increasing while static consumption inequality may be explained by "flattening" at the top and bottom end of the distribution. Furthermore, this study provides additional insights into the drivers of rising inequality, including the role of local corruption and impunity in contributing to some household mobility. The study also shows that the changing nature of social capital, including the erosion of traditional mutual assistance and the increasing importance of patronage networks, plays a significant role in determining households' opportunities and the support they receive (FitzGerald and So et al., 2007:193). The key findings of the report can be divided into two main categories: village and households findings (FitzGerald and So et al., 2007:192):

- At a village level, community well-being and prosperity are largely determined by two factors: the location and the accessibility of the village (including its proximity to rural centers and markets and year-round road access) and its geographical endowment (including soil quality, availability of arable land and irrigation). Demographic change (population growth, new marriages and under-employed male youth population) is impacting all villages and putting pressure on natural resources, affecting more radically those CPR-reliant villages where resources and opportunities are more limited.

[149] The nine villages represent all four of Cambodian main rural agro-ecological regions (the Tonle Sap plains, the Mekong plains, plateau/mountain region and the coast) and produced 890 panel households, which were supplemented with qualitative information from 477 participants of these nine villages.

- At the household level, the study found that location, assets and risk-spreading investments enable the comfortably rich to stay well off since they have multiple earners and sources of income, as well as assets and savings that act as insurance against shocks and crisis and allow investment in new opportunities. Migration is an increasingly important source of income for study households, contributing to upward mobility, in particular for better-off households and in villages close to the border. However, most migrating jobs are seasonal and short-term and local employment opportunities are also seasonal and agricultural, usually poorly paid or involving "in advance" cash for labor. Illness is the most frequent household shock or crisis and lack of affordable health care plays a direct role in driving households into poverty. Households moving upward are more likely than others to take risks, invest in health and education and have members migrating for work. Households that have moved downward have typically experienced shocks, life-cycle events, debt and / or destructive behaviors that drive them into poverty, but lack the assets, savings or income sources to cope with these events. Chronically poor households are trapped in poverty due to lack of (or limited) assets, old age, sick or disabled household heads, fewer earners and more dependents and reliance on only a few income sources, including CPR.

Murshid and Phim (2007) also provide a good summary in their review of Poverty and Vulnerability in Cambodia. The experience of people who have moved out of poverty seems to suggest some basic characteristics and processes. These include access to initial capital, avoiding borrowing and indebtedness, absence of any major economic or health shock, frequently engaged in money-lending along with a shop or trading activity, diversification of earnings away from rice cultivation into something more productive (animal raising, small business, food processing, etc.) and strong support from extended family. There is generally very little help and assistance available from social networks, local government or community based institutions. Initial capital comes from family support or hard work such as cutting wood, farming and fishing (2007:45).

Nature of Poverty in Cambodia

The nature of poverty in Cambodia is displayed by presenting a brief summary of the Cambodian poverty profile; the special concentration of poverty among the provinces; a succinct summary of vulnerability in Cambodia that stresses the voices of the poor and destitute; and the priority poverty issues recognized by the Royal Government of Cambodia, the donors and the NGO community.

Cambodian poverty profile

It is widely recognized that most of the poor in Cambodia are living in the rural areas where they rely mostly on weather-dependent agricultural employment. While the poverty headcount for 2004 was estimated at 35 percent, poverty was considerably higher in rural areas (39 percent) than in urban areas (5 percent in Phnom Penh and 25 percent in other urban areas).

Based on the WB (2006a) and RGC (2006) reports, some important characteristics of the poor, as identified by the recall estimates of the 2004 CSES include the following:[150]

- Poverty in Cambodia is overwhelmingly a rural phenomenon: approximately 91 percent of the poor live in rural areas (and poverty is lowest in Phnom Penh).
- The poorest 20 percent of all households spent 70 percent of their total consumption on food (while the richest 20 percent spent only 47 percent).[151]
- Poverty is highest among households with heads engaged in agricultural activities or employed as domestic workers (48 percent and 13 percent respectively of the total poor), who also experience the worst poverty severity. The highest incidence of poverty and the largest number of the poor belong to households headed by persons aged 30 to 50 years old.

[150] Note that the poverty profile based on the 2004 CSES provided information based on diary estimates as well as on recall estimates. Because the study of poverty trends and headcount has been based on the recall estimates, only information based on the recall estimates have been provided above (unless otherwise indicated).
[151] Diary estimates highlight that the differences in calorie consumption among the five population quintiles are considerable and range from 1,476 calories per adult equivalent per day in the poorest quintile to 4,006 calories in the riches quintile (RGC, 2006: 21). Note that the poverty line is set applying a 2,100 calories per day benchmark and that consuming below 1,500 calories per day is considered a clear health risk.

- Poor households tend to have larger dependency ratios (i.e. large households with many children and elderly). Poverty incidence significantly rises for household sizes larger than 5 persons (which accounts for half of the population).
- Poor households tend to lack human capital; they tend to be uneducated, unskilled and unhealthy. The probability of being in poverty drops significantly for household heads with some years of schooling. Poor households suffer acutely from health problems and often incur unaffordable health care costs.
- The poor and the extreme poor (the bottom quintile below the poverty line) are found in highest concentration in remote rural areas with limited access to economic and social infrastructure such as roads, irrigation facilities, markets or basic services (energy sources, water and sanitation, school and healthcare facilities). In fact, the poor have virtually no access to modern energy sources or water and sanitation: 97 percent of the poor rely heavily on firewood for fuel and kerosene for lighting, only 2 percent of poor households had access to piped water or public tap and only 3.5 percent had access to decent sanitation.
- The poorest often lack access to land for cultivation while those who owned land have little security of land tenure. About 15 percent of the poorest quintile and 13 percent of the next poorest quintile living in rural areas are landless. Also, only 15 percent of the extreme poor hold a land title compared with 29 percent of the richest quintile group.

There is not much difference in the poverty rates in terms of marital status, ethnicity or reported disability of household heads. Both female and male headed households experience similar rates of consumption poverty. Pothy et al (2007) in their gender analysis of food security statistics, report that in rural areas, the monetary value of food consumption in a female-headed household was R 1,330 per person/day while in a male-headed household it was Riel 1,242 per person/day.

Spatial concentration of poverty in Cambodia

The poverty maps developed by the Ministry of Planning (MOP) and the World Food Program (WFP) in 2002 reflect that poverty concentrates generally in the rural areas, but not in all, with about 27 percent of the total communes in rural areas make up the majority of the

poor: 104 communes in rural areas constitute more than 75 percent of the poor, while 394 others constitute 50-75 percent of the poor. The WFP's estimation of poverty rates at the commune level in Cambodia are based on the census of 1998 and found that the provinces with high incidence of poverty (i.e. above the national average) include: Oddar Meanchey, Banteay Meanchey, Siem Reap, Kampong Chhnang, Pursat, Prey Veng, Svay Rieng, and Krong Kep.[152] Please refer to the poverty map in Annex 8 for further information.

The 2004 CSES provided an update of poverty incidence and severity for agro-climatic regions and at the provincial level (even if not available at the commune level). Phnom Penh shows the lowest poverty rate at 4.6 percent. The Mountains/Plateau is the poorest zone with a poverty rate of more than 52 percent. The Tonle Sap region has a poverty rate of 43 percent compared with 32 percent in the Plains and 27 percent in the Coastal zone. However, due to the population density in these regions, the Plains zone has the largest share of the poor (40%), followed by Tonle Sap (37%), Plateau/Mountains (16%) and the Costal Zone (6%). The Mountain/Plateau and Tonle Sap regions show both highest poverty headcount as well as the highest poverty severity (about twice the national average). Poverty is higher in rural areas than in urban areas in all geographical zones (RGC, 2006: 54).

In terms of provinces, the poverty rate is highest in Kampong Spue (57%) followed by Kampong Thom (52%) and Siem Reap (52%). Poverty gap and poverty severity indexes also follow similar trends, indicating that poverty in these provinces is deeper and more severe. On the other hand, the lowest poverty incidence is in Phnom Penh (5%), Kandal (22%) and Kampong Som/Kep/Kok Kong (23%) (RGC, 2006: 55-56).

The spatial concentration of poverty in Cambodia summarized in the Table IV-2.

[152] Oddar Meanchey, Banteay Meanchey and Siem Reap are former conflict zones (the conflict lasted longer there than in most other parts of the country), where many of the population were returnees, and land was heavily contaminated with landmines. Many parts of Kampong Chhnang and Pursat were also affected by landmines. In Prey Veng and Svay Rieng there are small agricultural landholdings and no access to natural resources year round. Other facts common for all of these poor provinces are that, while the majority of the people live on farming, most of their agricultural land is not fertile and they are frequently struck by natural disasters (in particular drought and flood).

Table IV-2: Poverty Estimates by Region in Cambodia, 2004

Region	Poverty Headcount(*) Index (%)			% of all poor			Poverty Gap (*)
By Type of Area	Total			Total			Gap (%)
Phnom Penh	4.6%			1.1%			1.23
Other Urban areas	24.7%			7.8%			6.55
Rural areas	39.2%			91.1%			10.17
Cambodia	34.7%			100%			9.02
Geographical Zone / Province	**Total**	**Rural**	**Urban**	**Total**	**Rural**	**Urban**	**Gap (%)**
Phnom Penh Zone	**4.6.%**	**8.9%**	**1.1%**	**1.1%**	**1.1%**	**1.9%**	**1.23**
Phnom Penh	4.6.%						1.23
Plains Zone	**32.1% [33%]**	**32.9%**	**13.7%**	**39.7%**	42.3%	**8.9%**	**7.45 [8]**
Kampong Cham	[37%]						[9.28]
Kandal	[22%]						[4.81]
Prey Veng	[37%]						[8.09]
Svay Rieng	[36%]						[8.35]
Takeo	[28%]						[6.31]
Tonle Sap Zone	**42.8% [43%]**	**45.4%**	**28.2%**	**37%**	**36.2%**	**46.3%**	**12.15 [12]**
Banteay Meanchey	[37%]						[9.82]
Battambang	[34%]						[7.94]
Kampong Thom	[52%]						[15.55]
Siem Reap	[52%]						[17.31]
Kampong Chhnang / Pursat	[40%]						[10.35]
Costal Zone	**26.8% [29%]**	**30.1%**	**20.4%**	**6.1%**	**5.0%**	**19.7%**	**5.68 [6]**
Kampot	[30%]						6.60
Sihanoukville/Kep/KohKong	[23%]						4.60
Plateau / Mountains Zone	**52.0%** [52%]	**56.3%**	**32.6%**	**16.0%**	**15.4%**	**23.2%**	**15.21 [15]**
Kampong Speu	[57%]						16.98
Other provinces: Kratie, Mondolkiri, Preah Vihear, Ratanakiry, Stung Treng, Oddar Mean Chey and Pailin.	[46%]						13.20
Total Cambodia	34.7 [35%]	37.8%	17.6%	100%	100%	100%	9.02 [9]

Source: RGC 2006: 46, 53, 55 based on Knowles, 2005, CSES 2004

Notes (*):

- **Headcount poverty (incidence of poverty)**: percentage of population with per capita consumption below the poverty line.
- **Poverty gap (depth of poverty)**: total household consumption that would be required for redistribution with perfect targeting to eliminate poverty. It is measured as the average difference over the total population between a person's per capita consumption and the poverty line, assigning zero values to all people above the poverty line.
- **[Straight brackets]**: Indicates estimates over the full 15-month 2003/2005 CSES sample instead of only the 12 months of 2004

Vulnerably in Cambodia

The literature often highlights that households in Cambodia face a variety of risks that can push a relatively wealthy household into poverty and poor households into destitution. These risks can be further divided into covariant risks and idiosyncratic risks.[153] Covariant risks are shocks that affect many households at once such as floods, droughts, typhoid disease or the avian flu. Idiosyncratic shocks affect only individual households and include: illness (which is a major factor in land loss); crop failure or illness or death of livestock; theft or violence (including domestic violence); and life cycle events such as wedding, deaths or births.[154] According to the 2006 Poverty Assessment, floods in 2000 affected some 3.4 million people causing crop failures and extensive damage to houses, livestock and property, damaged public goods in the form of infrastructure and spread illness. Droughts in 2002 and 2004 also affected millions of people (WB, 2006a:53). According to the same report, vulnerability to these shocks is exacerbated by:

(i) the limited asset bases and savings of poor households;
(ii) the underdevelopment of financial markets for savings, borrowings and insurance;
(iii) the lack of livelihood/income diversification in many rural households;
(iv) heavy reliance on CPRs as part of normal livelihood strategies or as safety nets;
(v) lack of rule of law and lack of guaranteed access to justice in conflicts between the poor and wealthier and more powerful actors (WB, 2006:53).

In 2007, CDRI published "*We Are Living with Worry All the Time*," a qualitative participatory poverty assessment that took place in the Tonle Sap (the lake area), covering 24 villages in the surrounding 6 provinces and edited by Ballard. The specific methodology included various Participatory Rural Assessments (PRA) tools in Focus Group Discussions (FGDs) and individual and key informant interviews. The study aimed at listening to the voices of the poor and destitute, with particular attention to women, and to provide information on rural livelihood strategies, natural resource use and management, gender and local governance. The conclusions are that the situation of the poor and destitute are

[153] Idiosyncratic risks (i.e. non-contagious illness) affect individuals or households in an unrelated manner, while covariant risks (i.e. natural disasters) can be correlated among individuals or households.
[154] Households respond to these crises with both mitigation and coping strategies. *Mitigation strategies* are measures undertaken before a shock occurs to lessen the potential impact of a shock. *Coping strategies* include both the common and more extreme ways in which individuals and households deal with minor shocks and more devastating crises. They range from turning to relatives for help and selling assets to prostitution and begging. Many of the negative coping strategies have longer-term consequences and can oftentimes lead to even greater exposure to risk and diminished ability to manage risks (WB, 2006: 27).

becoming increasingly difficult as a results of a combination of factors, including debt, illness, shocks such as flooding and drought and a lack of institutional safety nets and protection. Many of poor and the destitute in the region are increasingly dependent on land and water based natural resources to sustain their livelihoods. However, farming productivity has been eroded because of droughts and flooding along with poor soils and lack of water management, while access to forest and fisheries is increasingly subject to the pressures of a growing population and to conflict with local elites and powerful actors from outside the village. As a result, the poor sell their labor locally or migrate elsewhere within the country or across the borders in search of employment opportunities (Ballard, 2007: 10). The poor and destitute are also especially vulnerable to various forms of domestic and public violence, lack access to important infrastructure (such as clean drinking water) and are routinely excluded from education and health care services because they are not able to pay for such services or because they lack information on their rights to obtain them. Corruption at the local level is endemic, and prevents the poor and the destitute from obtaining social services and erodes their capacity to improve their livelihoods (Ballard, 2007:1). The study also concluded that there is a chronic need in rural areas for consumption credit or credit to cope with sudden, unforeseen adversity, such as food shortages, illness, accident or death (Ballard, 2007:15). While the majority of rural households face similar high risk profiles, the distinguishing feature is that the richer households are able to cope with shocks without resorting to selling key productive assets or other measures that increase vulnerability. The voices of the poor and destitute are characterized by resignation to hardship and vulnerability. They live with the risk of routine shocks without safety nets, which impacts their mental wellbeing (reflected in reportedly higher incidence of violence and alcohol abuse than better-off households), and many are constantly worried about illnesses or their inability to pay debts that pull their family deeper into poverty (Lim, 2007:103).

Priority poverty issues for the Royal Government of Cambodia (RGC), donors and NGOs

The Royal Government of Cambodia (RGC) acknowledges the multidimensional nature of poverty. Reducing poverty is the stated overarching development objective of the RGC. Cambodia's poverty reduction strategy has been laid out in the National Strategic Development Plan (NSDP) 2006–2010, which was finalized in January 2006 (and approved by the National Assembly in May 2006). The NSDP is a single, overarching document

containing the RGC's priority goals, long-term targets and strategies to reduce poverty and to achieve the Cambodian Millennium Development Goals (CMDG)[155] and other socio-economic development goals. It replaces the second Socio-Economic Development Plan (SEDP-II) 2001–2005 and the National Poverty Reduction Strategy (NPRS) 2003–2005.

According to the NSDP, achievement of poverty reduction and CMDGs critically depends on achievement of significant and steady progress in several socio-economic spheres, such as: robust and equitable macro-economic growth; strong check on inflation; significant increases in agricultural production and productivity; protection and enhancement of the environment; strengthening and improvement of infrastructure; robust industrial growth, creation of employment and incomes; reforms in public administration and the judiciary; fast growth in private sector investments; unhindered growth in trade; and, growth in the services sector including tourism. The vision of the Rectangular Strategy is operationalized through the NSDP's goals and targets.[156] The key elements of the Rectangular Strategy include good governance; enhancement of the agricultural sector; further rehabilitation and construction of physical infrastructure; private sector development and employment creation and capacity building and human resources development (IMF, 2006a). Please refer to Annex 9 for a graphic summary of the key elements of the strategy. According to the IMF (2007a), progress will have to be accelerated if Cambodia is to meet the Millennium Development Goals: despite progress in some areas, some of the goals appear beyond reach. Please see Annex 10 for a table with the Millennium Development Goals, indicators, progress and the targets for Cambodia.

According to the World Bank and the IMF joint staff advisory note to the Executive Boards of the two institutions, the NSDP constitutes a significant step forward in terms of government ownership, up to date diagnostics and results framework (although ownership is felt unevenly across ministries and weakly at sub-national levels); it outlines links between goals, strategy and patterns of public expenditure, but is more indicative than specific when it comes to spending priorities. In addition, sustained effort is required to roll the NSDP out to

[155] The Cambodian Millennium Development Goals (CMDGs) were first formulated in 2003 and updated in 2005. The Millennium Development Goals are an ambitious agenda for reducing poverty and improving lives that world leaders agreed on at the United Nations Millennium Summit celebrated in September 2000.
[156] The RGC Rectangular Strategy (2004) replaces the RGC Triangle Strategy (1998). The three building blocks of the triangle strategy were: (1) building peace, restoring stability and maintaining security for the nation and people; (2) Cambodia's integration into the region and normalization of our relationships with the international community; and (3) promoting development.

Ministries in a manner which adds value to sector strategies that are at very different stages of development. The conclusion of the joint advisory note was that the NSDP could be strengthened as poverty reduction strategy by: (i) elaborating more detailed prioritization of policies and expenditures; (ii) making full use of the Technical Working Groups to strengthen the links between the NSDP, sector strategies, and the Public Financial Management reform process (especially regarding the agriculture strategy); and (iii) taking measures to broaden awareness and ownership of the plan within the Government and in the country at large (IMF, 2006b:13).

On the other hand, NGOs operating in Cambodia identified three main priority areas for reducing poverty in the NGO Statement to the 2007 Cambodia Development Cooperation Forum: (a) land, agriculture and natural resources management; (b) human development; and (c) good governance. Reforms in land, agriculture and natural resource management would include reducing those practices that are particularly harmful to poor and vulnerable groups such as land alienation, forced resettlements, and reduced access to land and natural resources. The human development agenda concentrated in education, health, gender relations and the good governance issues include the NGOs' concerns about the draft Anti-Corruption Law, freedom of information, management of future oil revenues, and legal and judicial reform (NGO Forum, 2007b). In support to this statement, NGOs produced 23 position papers on Cambodia's development in 2006 covering all areas where they are active in Cambodia. The position papers aimed at providing feedback on the progress made on the implementation of the NSDP and its monitoring indicators during 2006 and served as the background document to for the NGO Statement to the Cambodia Development Cooperation Forum (NGO Forum, 2007a).[157]

[157] The position papers cover the following detailed topics: governance (combating corruption; legal and judicial framework; decentralization and deconcentration reforms); implementation of the rectangular strategy (election reform and democracy, harmonization); agricultural sector (agriculture development, irrigation, water management; fisheries; hydropower developments; forests, plantations and concessions; land reform; mines; community finance); physical infrastructure (petroleum); private sector development and employment (trade; employment and Working Conditions); capacity building and human resource development (education; health; gender equality; disability; youth and child rights; costs, resources and programming; and NSDP monitoring and evaluation).

Cambodian Financial System and the Formal Financial Sector

Cambodia became independent in 1953; in 1963 banking and foreign trade were nationalized and from 1975-79 banks and markets were abolished in order to create the Khmer Rouge dream of an agrarian moneyless society. Following the fall of the Khmer Rouge regime, the Cambodian government established a mono-banking system in 1980 with the National Bank of Cambodia (NBC), a state-owned bank whose role included central, commercial and development banking activities. In 1989, as a market-based system emerged, commercial functions were separated from the NBC and private commercial banks were established as limited liability companies, usually in joint venture with the NBC. In 1996, the NBC was established as the central bank of Cambodia and it gradually divested its interests in all commercial banks (except the Foreign Trade Bank, which was directly managed by the NBC until the year 2000) (IMF, 2003:34-35). The subsequent reform process resulted in the closure of 15 banks and a tightening of prudential regulations.

According to the ADB's Financial Sector Blueprint (2001), Cambodia's financial sector is at a rudimentary stage, with limited financial intermediation, poor asset quality and high operating costs; this has led to low public confidence and limited deposit mobilization. Cambodia lacks a recognized interbank or money market, capital market or credit bureau for exchanging information among financial institutions. Lending against collateral is highly risky because Cambodia lacks the necessary legal infrastructure for secured transactions. The general public does not have access to credit cards, and credit card transactions are limited to some commercial banks and a few hotels, restaurants and high-end retail business.

In their latest assessment, the IMF concluded that the banking sector remains small, concentrated and highly dollarized. In fact, about 95 percent of the deposits and loans are denominated in US dollars and only a few banks take riel deposits. This high degree of dollarization poses a significant challenge for bank supervision since the lender-of-last-resort function of the NBC becomes severely impaired. Simultaneously, this extraordinarily high level of dollarization entails that there is little problem of currency mismatches in the overall banking system (IMF, 2007b: 28-29). The broader economy remains cash-based, with transactions in local currency occurring almost completely outside the formal banking system, except for some licensed MFIs and money changers (the last ones not supervised by

NBC) (IMF 2007b:24). As an indicative example, the highest value note denominated in Cambodian KHR is 50,000 (USD 12.50) but they are seldom used; the highest denomination commonly used by rural populations is KHR 10,000 (USD 2.50).

As a result, the bulk of money in the economy is held outside the banking system and there is little information on the amount of dollars held outside the banking system.[158]

On the other hand, money demand is rising: broad money grew by around 40 percent in 2006, mainly reflecting increases in bank deposits, almost entirely in dollars. Credit to the private sector (also in dollars) grew even more rapidly but the level remains very low at only 12 percent of GDP. These trends continued in early 2007 (IMF 2007a:6).[159]

According to the ADB's Financial Sector Blueprint (2001), the lack of rule of law in Cambodia has not only impeded the development of the private sector but has also hindered the development of a formal, contract-based credit culture. Cambodia still lacks a reliable court system, adequate enforcement mechanisms and effective measures against corruption. Cambodia has yet to create or is only in the early stages of strengthening the framework of laws regarding contracts, bankruptcy, collateral, loan recovery, accounting, insurance, negotiable instruments or secured transactions (ADB, 2001:5).

In order to conduct reforms with line with the priorities set by the Financial Sector Blueprint 2001-2010, the Council of Ministers approved a new Financial Sector Development Strategy 2006-2015 on February 2007 (EIC:2007). The strategy was developed along five main areas of focus: (a) foundations of financial sector development; (b) banking and microfinance; (c) non-Bank Finance (insurance); (d) financial markets; and (e) general and cross-sectoral issues (liberalization and competition; innovation and regulatory structure). The overall objective of the *strategy* is "to support the development of a sound market-based financial system to support resource mobilization, effective financial resource allocation, and broadbased sustainable economic growth," in other words, the objective is to build confidence in Cambodia's financial system, thereby encouraging formalization of finance and supporting

[158] De Zamaroczy and Sa (2004) estimated that $2.9 billion were in circulation in 2001 – this reflected the effects of UNTAC, international aid flows, return of Cambodians abroad and large scale investment in the garment industry (IMF, 2007b:24).

[159] Cambodia still has one of the lowest rates of banking intermediation in the world; in 2001, the ADB reported that bank loans and deposits accounted for 8 and 12 percent of GDP, respectively (ADB, 2001: 4).

more effective financial resource allocation in order to support economic growth and poverty reduction. In effect, the new Financial Sector Development Strategy updates and revises the Vision and Financial Sector Development Plan for 2001-2010 to address priorities and sequencing for the period of 2006-2015. Based on the above objective, vision and guiding principles, the key priorities for financial sector development include:

(1) improving enforcement of contracts and mechanisms for resolution of commercial disputes;
(2) improving fiscal, macroeconomic and monetary policy implementation;
(3) developing a safe and efficient payment and settlement system;
(4) improving financial sector supervision to appropriately address risks while at the same time providing incentives for financial development and innovation; and
(5) supporting human capital development and financial education across the full spectrum of Cambodia's population (RGC, 2007).

Please refer to Annex 11 for a summary to main focus in each of these areas.

Regarding rural finance, the core reform of the Blueprint was focused on strengthening the supervisory role of the NBC on MFIs. According to EIC, despite the steady progress in the field of supervision, progress remains slow in the promotion of deposits, regulation of leasing and insurance, the transformation of merged/restructured banks into licensed MFIs, as well as deepening the linkages between MFIs and commercial banks (EIC, 2007:39).

As of May 2007, the formal financial system consisted of 15 fully licensed commercial banks, 5 specialized banks, 2 representative offices, 17 licensed microfinance institutions and NGOs and money changers.[160] Of these 15 commercial banks, 3 are branches of foreign banks and of the remaining 12 private banks only 6 are majority Cambodian owned and 2 are subsidiaries of foreign banks. (Two more foreign-owned banks are expected to begin operations in the second half of 2007.) Of the 5 specialized banks, only one is state owned: the Rural Development Bank. Until recently the banking market was dominated by two Cambodian banks that held almost half of all deposits: Canadia Bank and the Foreign Trade

[160] To put this figure in perspective, the following data can prove useful: In 1998 there were 31 commercial banks. As a result of the 1999 Financial Institutions Law, 29 banks were examined through a re-licensing process; 11 were closed after they were declared non-viable; 14 were considered potentially viable if restructured; and 4 were considered viable as-is (The Economist Intelligence Unit, quoted in O'Driscoll et al., 2002).

Bank (then state owned). [161] However, in late-2005, the Foreign Trade Bank was bought by a consortium led by the market-leading Canadia Bank and ANZ Royal (Australian/Cambodian owned). As ANZ entered the market, it introduced more modern banking services and increased the competitive pressure.[162] As a result, the concentration of deposits in Canadia and Foreign Trade Bank (now with the same owner) has decreased markedly, and the rapid growth in deposits flowed disproportionately to ANZ Royal, ACLEDA (the bank with the largest rural presence) and Cambodian Public Bank (a subsidiary of a major Malaysian bank). All other banks remain small and generally associated with specific sectors or nationalities.

The Cambodia's Financial Sector Blueprint had warned that the volume of "non-performing loans in the banking system is substantial and growing" (ADB, 2001: 5) and the NBC warned about the non-performing loans in their 2006 annual report (2007:5).[163] Please refer to Annex 12 for the profile of the commercial banking system and to Annex 13 for a summary of the banking system as of May 2007.

The formal banking sector does not serve the rural populations, except for ACLEDA Bank. First, less than 4.5 percent of the total credit offered by both commercial and specialized banks is used for agriculture (and the bank with the highest volume was ACLEDA) (NBC, 2007: Table 15).[164] Secondly, formal banking institutions are mostly concentrated in Phnom Penh and the tourist destinations of Siem Reap and Sihanoukville (and to a much lesser extent, Battambang, Kampong Cham, Pailin, Kampot, the city of Poipet and Banteay Mean Chey – please refer to Annex 13 for details). ACLEDA is the only exception to this rule within the formal sector because it transformed from an NGO operating in microfinance into a specialized bank and eventually into a commercial bank. Currently, ACLEDA provides both commercial banking and rural financial services and has the largest network all over the country: over 30 branches in the cities and in remoter areas in the countryside.

[161] The NBC reported that 49 percent of all deposits and 61 percent of all loans were concentrated in 3 banks: Canadia Bank, Foreign Trade Bank and Cambodia Public Bank (NBC, 2007: 6)
[162] For instance, during 2006, 69 ATMs were introduced in Cambodia, bringing the total figure from 17 to 86 (NBC, 2996:1)
[163] For instance, the ratios of nonperforming loans over loans were: 68 percent for the Singapore Banking Corporation; 24 percent for Canadia Bank and 21 percent for the Foreign Trade Bank among the commercial banks and 26 percent for Peng Heng among the specialized banks (NBC, 2007: Table 13).
[164] The ADB previously reported that less than 6 percent of total banking sector advances are for agriculture or related activities and these are primarily short-term dollar-denominated loans (2001: 8). Another figure estimates that commercial banks disbursed around USD 9 million for agriculture, representing 3.7 percent of the total disbursement loans as of December 2001 (Son Koun Thor, 2002).

There is little information to identify why the commercial and specialized banks (excluding ACLEDA Bank) are reluctant to lend in rural areas. Plausible hypotheses include the higher costs associated with lending in rural areas, few perceived opportunities and the inability to effectively assess credit risks. In this last regard, Harner (2003) researched 12 banks in order to identify the barriers to providing medium and long-term lending for locally-owned SMEs.[165] According to the study, banks in Cambodia generally prefer to finance working capital (short-term) rather than fixed capital financing (medium and long term) and to finance individuals (rather than corporations) that have immovable assets as collateral, such as land and buildings in Phnom Penh or other major cities (rather than movable assets such as equipment and machinery). The main barriers to SME lending by banks can be grouped in three main categories: an inadequate legal and judicial system, weakness of the credit market (supply side) and weakness of the SMEs (demand side). The banks' perception of the legal and judicial system is that the existing laws[166] (as well as the current court system) are inadequate to protect the banks' interests. The weakness of the credit market refers to both the shortage of specialized lenders and lending officers in commercial banks as well as the fact that bank staff do not have the skills (or the incentives) to adequately analyze and manage risks of long-term lending. In turn, this lack of adequate analysis leads staff to compensate by charging higher interest rates than appropriate to the actual level of risk of the operation. On the supply side, SME borrowers often lack the expertise to convince banks that they are good clients; for example, SMEs rarely maintain minimally acceptable financial records and often perceive bank procedures to be too complicated (Harner 2003 and MPDF 2003). Other important issues highlighted by the Harner study are that SMEs are unable to approach banks outside the major cities and that some SMEs prefer to use the informal credit market. In relation to rural finance, the lack of medium and long-term lending affects not only middle range farmers but also rural populations in general, who lack long-term credit for any kind of capital-intensive input or asset.

High risks and operating costs are associated with high interest rate spreads and the prevalence of short-term lending. The spread between loan and deposit interest rates was estimated at about 13 percent, as loan interest is around 20 percent per annum or more.

[165] The 12 banks interviewed were: ACLEDA Bank Ltd; Advanced Bank of Asia Ltd.; Cambodian Commercial Bank; Cambodian Public Bank; Canadia Bank Ltd.; Foreign Trade Bank of Cambodia Ltd.; Maybank; Mekong Bank; Peng Heng SME Bank Ltd.; Rural Development Bank; Singapore Banking Corporation; Union Commercial Bank Plc. (Harner, 2003).

[166] This includes the 2001 land law, the 1988 contract law and the lack of company and bankruptcy laws.

Typical loan maturity is 3-6 months. Because long-term finance is unavailable the common practice is to roll over short-term loans, increasing the overall risk (ADB, 2001: 6).

Despite high demand, there is an almost total absence of medium and long term financing for SMEs. This is not because lending to SMEs is unprofitable; in fact, the profitability spread for lending to SMEs is higher than the profitability spread for general lending. Compared to international standards, Cambodia's banks have low loan portfolios (in addition to low bank intermediation) and a large amount of the banks' funds are deposited with the NBC (Harner, 2003:4).

Therefore, within the formal sector, the Rural Development Bank (RDB), the Association of Cambodia Local Economic Development Agencies (ACLEDA Bank) and the microfinance institutions are the most relevant institutions regarding rural finance. ACLEDA Bank and the Cambodian microfinance institutions will be reviewed in detail in Chapter V.

The Rural Development Bank (RDB) is currently the only state owned bank remaining within the formal sector.[167] The RDB was established by the government (with foreign assistance) in 1998 and became a wholesale bank for channeling funds from the international donor community to Cambodian Microfinance Institutions (MFIs) in 2000. The RDB is under the financial control of the Ministry of Economy and Finance and it is supervised by the NBC. The RDB principal activities are "providing financial resources to commercial and specialized banks, and MFIs involved in the provisions of credit and savings services for rural households and small businesses" (RDB, 2007:18). Concretely, the RDB mission is detailed as:

(i) financing and refinancing Licensed Financial Institutions, Small and Medium Enterprises, Community Based Associations, and Micro Entrepreneurs which support rural economic activities;
(ii) supporting long and medium term investment project for small and medium rural and urban enterprises;
(iii) negotiating soft loans with donors that will permit the bank to widen its activities;
(iv) take public deposits;

[167] Note that its banking license became due in June 2007.

(v) cooperating with financial institutions which extend credit to farmers and to projects for agriculture, rural development and rural enterprises;
(vi) providing technical training for Licensing Financial Institutions, Small and Medium Enterprises, Community Based Associations; and
(vii) monitor institutions which obtained subordinated debt from the Government

Interestingly, compared with its mission as of 2003, its responsibilities have been minimized as a wholesaler, there is a focus on soft loans from donors and instead of encouraging the mobilization of deposits by the public they now list as their mission to take public deposits.[168] The RDB obtains its on-lending funds from the following main sources: the Asian Development Bank (ADB), International Fund for Agricultural Development (IFAD), Agence Française de Développement (AFD) and Groupe de recherche et d'échanges technologiques (GRET) –KOSAN; the Ministry of Economy and Finance (MEF) and the RDB's own funds.[169] The conditions for on-lending depend on the source of the funds; for example while the ADB's funds are restricted to licensed financial institutions, IFAD's funds are open to registered -but not necessarily licensed- microfinance operators and the RDB's own funding is open to registered and non-registered microfinance operators, NGOs and associations.

The RDB had loans outstanding from ADB fund (which is restricted to licensed banking institutions) for USD 2.2 million The original fund was USD 20.7 million, but the slow disbursement figures led to the cancellation of USD 14.8 million in December 2002. The cancellation reflected the weak capacity of both the RDB and the MFIs (IMF, 2003: 41). According to the ADB's Performance Audit Report on the Agricultural Sector Program, this slow loan disbursement was caused by a number of factors, among them that there were only three eligible clients and that the RDB's loans were not necessarily attractive to eligible

[168] Its responsibilities as 2003 included:
(i) financing and refinancing MFIs and commercial banks in support of the rural economy;
(ii) negotiating with donors for funding;
(iii) encouraging the mobilization of deposits by the public;
(iv) cooperating with financial institutions in providing agricultural credit;
(v) conducting wholesale banking activities; and
(vi) training staff of MFIs funded by donors or government (Conroy, 2003).

[169] Funds from IFAD are linked to Support to the Seila Programs in four provinces (Pursat, Battambang, Banteay Mean Chey and Siem Riep). Funds from AFD are linked to the family rubber plantation (in fact the AFD grant is being implemented on behalf of RDB by GRET). GRET-KOSAN funds are to be on-lent to Peng Heng SME Bank, which will, in turn, re- lend to selected private investors in a rural water supply project in Takeo province. Funds from the MEF is for provincial rice miller associations. Funds from the ADB are linked to the Rural Credit and Savings Project (RDB, 2007).

borrowers (ADB, 2003:8). Regarding the number of potential clients, the RDB could only lend to banks and licensed MFIs and its wholesaler function was made available before enough institutions could make use of it.[170] Secondly, while the RDB lent at concessional rates, the loans were not necessarily attractive to eligible borrowers that have access to concessional funds from other external sources.[171] In addition to the price, other terms and conditions attached to loan contracts might have made them equally unattractive to potential borrowers (CSD, 2002:80).

The total outstanding loans of the RDB as of December 2006 was USD 12.5 million, of which less than 7 percent was denominated in riel and 93 percent in US dollars. The RDB has provided funds to banks, microfinance operators (licensed, registered or neither) and associations and is also the counterpart of some development projects. Of the sixteen licensed microfinance operators, the RDB has a current outstanding balance with eleven of them but this group only includes four of the main microfinance operators (which will be discussed in Chapter V) and for small amounts: Cambodia Entrepreneur Building (CEB) (USD 513,000); Hattha Kaksekar (USD 500,000); Thaneakea Phum Cambodia (USD 293,000); Amret Co Ltd (USD 246,000).[172] The RDB has also provided loans to some smaller (not licensed) registered microfinance operators or NGOs, some associations, and a specialized bank (Peng Heng Bank). As of the end of December 2006, about 59 percent of the portfolio was linked to licensed or registered microfinance operators or NGOs.

[170] As of December 2002, Cambodia had only three licensed MFIs (EMT [currently AMRET], Hattha Kaksekar and Tong Fang Microfinance, the last one being very small) and four specialized banks of which only one handled microcredit (ACLEDA). Given the limit per institution of USD 1 million set by the ADB fund, the maximum amount that could have been lent as of December 2002 was USD 3-4 million.

[171] The actual concessional rates are difficult to report. According to the RDB, their minimum interest rate for loans from the ADB was 5.47 percent for US dollar lending and 6.47 percent for riel lending in 2003. For loans from the IFAD fund their minimum interest rate was 7 percent per annum for US dollar loans and 11-12 percent per annum for riel loans. For loans from the RDB's own fund the loans were between 8-10 percent for US dollar lending and 12-15 percent for riel lending. However, according to the ADB report, the RDB charges an annual interest rate of 12 percent on US dollar loans, including 4 percent for its services, without the capacity to deliver services or training (ADB, 2003:8). Also, according to an appraisal by the Consultative Group to Assist the Poor (CGAP), EMT's (currently AMRET's) cost of funds from the RDB riel loans was 15 percent per annum (Reille et al., 2002: 34).

[172] The licensed MFIs, ordered by the size of the loan outstanding with the RDB are: Intean Poalroath Rongroeurng (USD 1,400,000); Seilanithih (USD 676,000); Cambodia Business Integrated in Rural Development (CBIRD) (USD 601,000); Cambodia Entrepreneur Building (CEB) (USD 513,000); Hattha Kaksekar (USD 500,000); Farmer Union Development Fund (FUDF) (USD 394,000); Cambodia Health Committee (CHC) Ltd (USD 350,000); Thaneakea Phum Cambodia (USD 293,000); Amret Co Ltd (USD 246,000); Maxima MFI (USD 230,000); Pisit Akphiwat Sethakeh Co. Ltd (USD 50,000). ACLEDA bank and Tong Fang MFI had outstanding loan in 2005 but not in 2006.

In summary, given limited supply of rural finance from commercial and specialized banks, the main providers of microfinance and rural finance in Cambodia are the microfinance institutions and the rural services of ACLEDA Bank (excluding its commercial banking arm). Chapter V will discuss how the services have concentrated mainly in credit and will review each of these providers (albeit covering only the microbusiness portfolio of ACLEDA Bank) as well as the regulatory framework in which they operate.

Chapter V – RURAL FINANCE AND MICROFINANCE IN CAMBODIA

This chapter provides a general overview of how microfinance and the rural finance sector have evolved in Cambodia in the last five years. The first part of the chapter reviews the size and nature of demand for rural finance while the second section of the chapter concentrates on the supply of rural finance, describing the regulatory framework and its implications as well as analyzing the main microfinance providers in Cambodia. The final section of the chapter further analyzes the evolution of the market from 2000 to 2007 through a detailed seven-year comparison of the institutions reporting the Cambodia's central bank.

Demand for Rural Finance: Size and Nature of Demand (mainly credit)

Along with the lack of infrastructure and underdeveloped markets, the lack of access to reliable financial services has been identified as a major constraint to the reduction of rural poverty in Cambodia, especially regarding households' incomes from agriculture (McKenny and Tola, 2002; FAO, 1999). However, demand for rural credit far exceeds supply and reliable savings facilities are generally not available in rural areas or to the poor. The following sections will provide an estimation of the size of the market and describe what is known about the nature of demand.

Size of the Market

On the demand side, there is no reliable data about the aggregate demand for microfinance or microcredit in Cambodia (MPDF, 2005:3). Different sources have estimated that Cambodia needs to loan the rural poor between USD 40 million and USD 125 million but the figures for the demand of microcredit differ widely. [173] On the supply side, the aggregate outstanding

[173] The government estimated the total need for microcredit at around USD 125 million (IMF, 2003: 41). Economist Sok Hach estimated the figure to be between USD 70 million and USD 100 million (quoted in Kay Kimsong 2002: 14). ACLEDA Bank estimated the demand for microcredit at USD 100 million (In Channy, 2002: 2). Within the National Poverty Reduction Strategy (NPRS), the government estimated the shortage of credit capital to be between USD 60-90 million (CSD, 2002: 79). The Asian Development Bank (ADB)

microcredit was USD 208.74 million and mobilized savings were USD 4.31 million. These are the official figures as of May 2007 of the 17 licensed MFIs and the 26 registered NGOs reporting to the NBC (USD 114.42 million) plus the "micro" and "small" business loan portfolio of ACLEDA estimated at USD 93.4 million.[174] The deposits portfolio of ACLEDA Bank has been excluded in this analysis since it is not possible to identify the exact percentage linked exclusively with rural finance (as opposed to institutional depositors or urban individuals with large depositors). However, a discussion of the percentage of households not currently covered by rural finance might prove more useful in estimating the potential demand for financial services in rural areas.

Recent estimates set Cambodia's population in 2006 at 14.4 million people, corresponding roughly to 2,750, 000 households.[175] As of December 2006, the number of borrowers of microcredit served by microfinance operators reporting to the NBC (plus the corresponding rural finance figure of ACLEDA) was 671,219. If we assume that each of these borrowers represents a household and that each household borrows only from one institution,[176] current microcredit reaches less than 25 percent of total Cambodian households. Because over 90 percent of the Cambodian poor live in rural areas, it is useful to calculate credit service coverage exclusively for rural households. Given that 81 percent of the population is rural, the number of rural households can be estimated at 2,227,500. Even if we further assume that all existing borrowers are from rural areas, thus the percentage of rural households with access to formal and semi-formal microfinance services becomes 30 percent. Therefore, although we do not know how many rural households currently need access to credit or other financial services, we can estimate that at least 70 percent of Cambodian rural households are not served by formal or semiformal microfinance operators at affordable terms and must rely solely on informal financial sources such as friends, relatives, neighbors, moneylenders and middlemen to cover their financial needs.

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estimated total rural finance demand at USD 120-130 million per annum, of which only one third (i.e. USD 40-43 million) is for microcredit ranging in loan size from USD 50 to USD 300 (ADB, 2001: 8).

[174] ACLEDA's loan figures for the "micro and small business portfolio" were reported directly to the author by the Credit Management Unit by personal communication (October 2007).

[175] This is an approximate figure: applying the average household size of 5.2 identified in the population census of 1998 to this recent estimate of population, the current number of households in Cambodia is 2,769,231 and applying the 5.1 average household size identified by Cambodia Inter-Censal Population Survey (CIPS) of 2004, the approximate number of households in Cambodia would be 2,823,529. Note that the results of the CIPS 2004 are the most recently available but may not be as accurate as the ones from the Census 1998: while the Census 1998 covered over 2 million households in more than 13,000 villages the CIPS 2004 barely covered 21,000 households in 700 villages.

[176] However, anecdotal evidence suggests otherwise.

There are few studies that look at the sources of credit and fewer still that attempt to establish the average size of the debt per household or the uses (stated or real) of credit, including credit used specifically for agricultural purposes. The different methodologies and questionnaire design impede an accurate picture at the household level, but a review of existing data allows two main conclusions:

(i) rural households currently have outstanding debt: 24-60 percent of rural households have debts and that each household owes, on average, USD 64-150.

(ii) rural populations rely on the informal and semi-formal sectors for providing credit and it is not possible to accurately measure the relative importance of semiformal versus informal finance sector for rural households.

Regarding debt prevalence and average debt per household, Helmers (2003) compares the results from five sub-national sample surveys and provides additional information from a (re) analysis of a national survey (CSES 1999/Gibson).[177] The summary table of debt prevalence among households from the five sub-national quantitative studies indicates that 40-60 percent of households have current cash debts ranging from KHR 245,000- 315,000 (USD 64-84). Rice debt is incurred by 13-49 percent of households, each owing between 150 and 373 kg (2003: 71-72).[178] On the other hand, the analysis of a national level study (CSES 1999/Gibson) indicates that the prevalence of loans in households is much lower: around 24 percent on average, but with a higher average loan debt of KHR 550,000 (USD 150).[179] According to a rice study by the Ministry of Commerce (2001), 43.8 percent of the respondents had borrowed money often or sometimes and each respondent had on average KHR 375,000 (USD 96) of outstanding loans, with most borrowers (67 percent) owing around KHR 300,000 (USD 77).[180] According to the Cambodian Poverty Profile, 43 percent of households have one or more loans outstanding, owing on average KHR 224,000, but there

[177] The five sub-national quantitative studies reviewed and the number of provinces and households covered are: Ahmed et al. (1998) surveying 8 provinces and 5,117 households; Kenefick (1998) in 13 provinces and 1,200 households; Kenefick (2000) in 12 provinces and 1,298 households; Helmers & Wallgren (2001) in 4 provinces and 1,104 households; Sophal & Acharya (2002) in 7 provinces and 1,005 households (Helmers 2003:6 and Helmers 2003b:72).

[178] The figures of the cash debts are based only on the most recent studies. The amount of rice debt is based on 4 surveys and, in the case of Sophal & Acharya (2002) it includes not only rice debt but any in-kind debt. The figure of the kilograms of rice owed is based on the information from 2 of the surveys.

[179] The average loan size is smallest for the poorest quintile (Riel 180,000 or USD 45) and largest for the wealthiest quintile (Riel 2.1 million or USD 550). Also, the average annual interest rate on outstanding loans is 31.4 percent, but the interest rate is highest for poorer borrowers than for the wealthiest quintile borrowers (39.0 percent vs. 26.2 percent) (Gibson, 2003:33). Little further definitive information can be inferred regarding wealth quintiles and geographic zones.

[180] Ministry of Commerce (2001). The survey had 845 respondents.

are sharp difference by the level of poverty of the households: 50 percent of the poorest quintile have loans outstanding, owing KHR 233,400 on average, while 31 percent f the richest quintile households have outstanding loans owing KHR 846,600 on average (RGC-MoP, 2006: 79)

Regarding sources of credit, Benkirane (2003) in her survey of 558 people in 5 villages found that 38 percent of households had loans from family members, 32 percent from microfinance providers, 16 percent from suppliers or middlemen and 14 percent from moneylenders. Sophal and Acharya's (2002) survey of 1,005 households in 6 villages reported that 44.5 percent of households obtain their loans from relatives and friends, 33.1 percent from moneylenders, 15.7 percent from microfinance providers and about 7 percent from other sources. Noteworthy is that while relatives and friends provide the larger number of loans, the size of each loan is smaller.[181] According to the Ministry of Commerce rice study (2001), 19.9 percent of respondents rely on microfinance operators. When asked to enumerate all the available lenders, microfinance providers were the most mentioned (34.6%), followed closely by relatives and friends (31.5%), middlemen (13.8%), moneylenders / pawnbrokers (10.8%) and rice millers (2.1%).

The most recent qualitative study in the Tonle Sap concluded that while all forms of informal credit are present in all areas, the predominant informal credit sources depend on the specific evolution of the area from the subsistence economy of the 1980s to early 1990s: those geographic areas with natural resources and livelihood opportunities have stimulated the growth of moneylenders and traders. In poorer areas, most arrangements are cash-kind/labor or kind-kind/labor (with cash-labor forms dominating the market and implicit interest rates charged through low wages that are below market prices).[182] Also, the rich and medium households tend to be lenders to the poor and destitute. When rich and medium households do borrow they usually borrow from formal sources or traders. On the other hand, poor and

[181] The average loan size from relative and friends ranged from Riel 232,000 to Riel 275,000 (USD 59-70). The largest average loan size is from ACLEDA and ranges from Riel 506,000 to Riel 864,000 (USD 130-221). The general average loan size is Riel 277,000 to Riel 354,000 (USD 71-91) (2002:47 and 107).

[182] In Cash-kind loans money is borrowed with the promise of repayment in kind or in labor (e.g. rice producers or artisans taking cash loans from a trader with the promise of selling the entire or some of the production to this trader at a lower price or providing labor as repayment or fishermen taking cash loans from a trader with the promise of selling the entire catch to this trader at a lower-than-market price). (The opposite are kind-cash loans, where loans in rice, agricultural inputs such fertilizer or services such as health are repaid in cash in amounts that involve an implicit rate of interest). In kind-kind loans consumption loans in rice are repaid by labor or labor is exchanged for labor or draught power (Murshid, 2007: 221).

destitute households also borrow from traders but depend heavily on rich and medium households for pre-paid wages and loans requiring daily repayment. Women are not discriminated in the Tonle Sap rural credit market, where they play a key role in negotiating terms and credit amounts and are almost always co-signatories to credit contracts. Finally, the study concluded that while credit rarely plays a role in moving people out of poverty, it can accelerate the process of downward mobility. The author further suggests that for the poor and destitute, informal credit provides immediate (even if temporary) relief but also an illusory opportunity because the opportunity to regain equilibrium or overcome a particular shock is rarely realized (Murshid, 2007: 243).

Nature of Demand for Rural Finance (mainly credit)

Despite not being able to accurately estimate the relative weight of informal finance sector as credit providers for rural populations, their importance cannot be underestimated. Rural Cambodians depend on these informal sources of credit not only for productive investment (notably in rice production) but also for consumption and other seasonal or occasional needs such as educational costs or ceremonies (weddings, funerals).[183] Additionally they borrow in cases of emergencies (such as sickness or accidents) because health costs are often prohibitively expensive for rural Cambodians.

[183] The available studies have provided different figures:
- According to Benkirane's survey, the principal uses of credit were: agriculture (28%), livestock (27.6%), consumption and cash flow (27.5%), other investments (8.4%) and others (8.4%) (2003:25).
- The 2001 rice study by the Ministry of Commerce enumerated the following reasons for borrowing: 32.4% borrowed for agricultural inputs; 21.1% for health/illness reasons; 13.8% for food; 8.8% for educational costs; 7.5% for daily necessities; 4.4% for investment in agriculture (other than inputs) and 4.4% for wedding and funerals (2001: 3.7.3-1).
- Bousso et al. in their survey of 523 households in eight villages found that between 24% to 65% of the total amount was used for agriculture (including investments in purchasing equipment, livestock and fertilizer as well as direct use of cash flows for agricultural purposes) and 16% for boosting working capital for trading (1997:43).
- Aafjes' (1996) results from her survey of 142 villages in 3 provinces found credit for agricultural purposes as the main use of credit (12-20% of the total number of loans were used for purchasing fertilizer, 14-23% for animals, 0-6% for agricultural equipment, 0-3% for pesticides, 2-3% for seeds) while the rest was used for other business or consumption expenses.
- Cater's (1996) survey of 283 households in Kompong Thom province found that 46% of rural households required credit for farm tools and inputs, 10% for piglets and 54% for other business investments, consumption or other non-agricultural purposes.
- Gibson (2003), in his analysis of the CSES 1999 finds that the share of loans that are primarily for agricultural purposes is 14% on average, which seems low compared with other studies (Helmers 2003:44-45). Interestingly enough this figure changes very little according to the level of wealth (ranging from 12 to 15% across the 5 quintiles).

Most of the few studies that look into uses of credit usually focus on "agricultural" use (and more often than not this is tacitly linked to rice production) and explore little of other income-generating options or consumption options, which leaves the analysis incomplete and, in effect, misleading.

According to Helmers' report "there seems to be a research gap about how often rural households need to borrow, how much, from whom can they borrow and at what costs as well as the strategies rural household use when credit is not available for consumption and emergency needs" (2003: 70). Indeed, the fact that there is little information about the sources and uses of financial services by rural households is just another symptom of the lack of systematic and accurate information about both the sources and the uses of income (i.e. livelihood strategies) in rural households. Likewise, most of the findings from Helmers' summary of sources of income and livelihood strategies of Cambodian rural households are of direct relevance for rural finance, among them that:

(a) there is a lack of research on the broad range of issues related to Cambodian rural livelihoods, income sources and livelihood strategies;
(b) national level studies do not appropriately cover the different sources of income for rural households and yet their results are repeatedly utilized in secondary studies / analyses concerning policy issues at the national level; and
(c) there is a high prevalence of shocks (crises) in rural households that cause major income loss or increased expenditures and that the rural households' responses or coping strategies contain inherent risks themselves (2003: 3-4).

Regarding the first two points, it is commonly accepted that Cambodian rural households typically depend on a diverse range of income sources composed of a combination of agricultural, livestock, fisheries/aquatic resources, forestry and other income generation activities such as wage labor, small business, and rental of assets or remittances. However, there is limited research available about the economic role of each of these specific sources of income among rural households and, more importantly the economic role of rice production has probably been overemphasized, non-rice crops (including field crops, vegetables and

agricultural tree crops) under-estimated and forestry and fisheries under-enumerated and undervalued (Helmers, 2003: 3-7).[184]

The issues raised by Helmers are of crucial importance for rural finance because of two main reasons:

(i) if sources of income have been under-represented in previous studies, there is little information that can be useful from these studies for microfinance providers and

(ii) detailed, systematic and accurate information about sources of income and the coping strategies of rural households are critical for increasing access to rural finance: microfinance operators must know the cash flow patterns of rural households in order to design adequate financial products to fit rural households' needs.

The relevant question for rural finance is not whether credit has been used for agricultural purposes, or more generally, if the credit has been used for productive purposes versus consumption purposes. Money is fungible and loans are simply lump-sums used to fulfill the financial needs of households at a particular point in time. Generally, attempts to investigate exactly where the money is being invested are likely not to be cost-efficient. In fact, it does not really matter whether a particular lump-sum has been used for purchasing fertilizer or for paying the school fees or for covering health costs. From the point of view of the microfinance providers and, more broadly, for expanding access to rural finance the crucial issues are (i) whether the household can generate enough income at the right time to be able to service its debt, and (ii) whether the patterns of rural households regarding sources of income and uses of income (i.e. livelihood strategies) are well known. Microfinance operators need to understand the first point in order to screen effectively for credit risk but will need to understand the second one in order to design products that fit the client's needs.

[184] For instance, the CSES 1999/Gibson results estimate that, on average, non-rice crops contribute 7 percent of total household income and livestock incomes 17 percent. Additional (limited) findings indicate that, on average, wage labor contributes 10-30 percent and small business 14-30 percent of total household incomes (and that 30 percent or more of rural households engage in wage labor and that 25 percent or more of rural households engage in small business as important sources of income) (Helmers, 2003: 3-7).

In order to fill in this gap, AMK's research efforts include establishing a profile of client households and the villages where they liver. Chapter VI provides a succinct analysis of rural households and village profiles.

There is no further information on the demand of other non-credit services. In particular, the demand for savings has not been quantified but is estimated by the ADB to be "significant and largely unmet because of (i) the absence of secure and reliable savings facilities; (ii) the lack of appropriate products; (iii) the high cost of service delivery; (iv) inaccessibility; and (v) the relative inexperience of microfinance operators in managing savings" (ADB, 2001: 9).[185]

Supply of Rural Finance

Microfinance services can be provided by formal institutions, semi-formal institutions and informal providers. Within the Cambodian context, formal finance providers are those institutions subject not only to general laws but also to specific banking regulation and supervision, while semi-formal providers are registered entities subject to general laws but only to some form of supervision or reporting requirements. As was reviewed in the Cambodian Financial System of Chapter IV, within the formal sector, the current sources of rural finance in Cambodia are the microfinance operators and the rural finance division of the operations of ACLEDA Bank. The informal sector providers are non-registered groups and individuals for which neither special banking law nor general commercial law apply; this includes friends, relatives, neighbors, moneylenders and middlemen as well as self-help groups and rotating savings and credit associations. In turn, moneylenders can include wealthy village chiefs, local authority members or other patrons while the term middlemen usually refers to traders in inputs or agricultural trade. Because of the intrinsic nature of the informal sector, little accurate information is available. While there is some information regarding supply chain linkages from middlemen or traders in studies of specific industries (such as rice millers, fisheries or resin),[186] previous attempts to profile components of the informal sector (such as moneylenders) have rendered fragmented results. Relatives and

[185] In 1997 the general rate of domestic savings was only 5 percent of GDP, the lowest in South East Asia. In 2000, domestic savings were reported at 9 percent of GDP.
[186] See for example ACI (2002), Tola and McKenney (2003) or Chea and McKenney (2003b).

close friends usually charge no interest, but moneylenders and middlemen charge high interest rates of around or above 10 percent per month.[187] The informal sector can provide credit in cash and in kind while microfinance operators tend to concentrate on credit in cash. Local variations of RoSCAS or ASCAS[188] (known in Cambodia as "tong tines" or "tontines") are popular in Cambodia and found usually among salaried workers (often among civil servants) and among large merchants operating in the main markets of the provincial capitals, but are rare in remote rural settings.

In order to provide a complete overview of the current state of the rural finance sector in Cambodia and the general financial sector context, this section on the supply of rural finance has been subdivided in three parts. The first part provides the main characteristics and history of ACLEDA Bank, the only commercial bank that serves rural populations (albeit not exclusively). The second part analyzes Cambodia's regulatory framework for microfinance operators and it implications for the supply of rural finance. Finally, the third section concentrates on the main Cambodian providers of microfinance services: the micro-and-small business loan portfolio of ACLEDA Bank and the eight main microfinance institutions.

ACLEDA Bank

The Association of Cambodia Local Economic Development Agencies Bank (ACLEDA Bank) started its operations as an NGO, became a specialized bank and only became a full commercial bank in December 2003. The evolution and performance of ACLEDA Bank is well known within the industry and it is often regarded as one of the main success stories worldwide in microfinance and rural finance. Clark (2006) documents the history of the bank

[187] ADB (CAM 30237-01) documents the interest rate of moneylenders at 10 percent per month. Sophal and Acharya report moneylenders charging from 6-9 percent per month (2002:47). Sedara, Sophal and Achraya report that if the borrowers have family or good relations with the lenders the interest rate might only be 5 percent per month without requesting collateral while poorer households without that network may pay higher interest rates of 10-15 percent per month in addition to providing collateral (2002:18). The author can confirm that moneylenders charge as little as 5 percent and as much as 15 percent per month.

[188] Rotating Savings and Credit Associations (RoSCAs) and Accumulating Savings and Credit Associations (ASCAs) explicitly pool savings and tie loans to deposits. Members are usually familiar with each other and contribute a certain sum every day, week or month. The total sum of the savings is distributed to each member in turns and the RoSCA/ASCA will dissolve or start a new cycle once all the members have had their turn. Members define the sequence of their turn by consensus, lot, or bidding. In Cambodia, tongtines commonly use monthly bidding, conducted by secret ballot with a discount offered by the highest bidder who pays the bid as a reduction in the contribution/installments of the other participants (WB, 2006: 30).

from its inception to its success as a commercial bank. ACLEDA was established in January 1993 as a national NGO for micro and small enterprise development and credit, with the aim of raising the standard of living of the poor by promoting economic activities ranging from self-employment and small to medium size business. The expansion of its network and its sustainability led to the transformation of ACLEDA NGO into ACLEDA Bank Ltd. The transformation started in 1998. ACLEDA Bank received a specialized bank license in October 2000 and its full commercial banking license on December 2003, officially changing its brand name to ACLEDA Bank Plc. since January 2004. On December 2004 and May 2007, ACLEDA Bank Plc. was rated by Moody's Investors Service obtaining a **D** for its Bank Financial Strength Rating in both occasions. ACLEDA Bank's shareholders are ACLEDA NGO, ACLEDA Staff Association, IFC (International Finance Corporation-a division of the World Bank), DEG (a part of KfW -Group, Germany), FMO, and Stichting Triodos Doen together with Triodos Custody B.V. as custodian of Triodos Fair Share Fund (The Netherlands). As of December 2006, ACLEDA Bank Plc. is 51 percent owned by Cambodia interests (including its staff) and the remaining 49 percent taken up in equal parts by foreign investors.[189]

Currently, ACLEDA Bank covers every province in the country (24 provinces/towns).and offers credit services; savings services; transfers; cash management services for manufacturers and distributors and trade finance. Credit services include microbusiness loans; small business loans; medium size business loans; personal/retail loans; overdrafts; revolving credit lines; credit lines; and housing loans.[190] Savings services include savings and demand deposit; current account; fixed deposit; corporate deposit; trust account for real estate; euro flex account and trust services. Transfers include local fund transfers and both SWIFT and Western Union international transfers. Cash management services for manufacturers and distributors include payments, standing orders, direct debits, supplier

[189] ACLEDA NGO remains the main shareholder with 37.70 percent of the shares. The other shareholders are ACLEDA Staff Association (13.30%) and four foreign investors each holding 12.25 percent of the shares (IFC, DEG-KfW-Group, FMO and Triodos-Doen Foundation Bank). The last one is divided between Triodon Doen (7.95%) and Triodos-Fair Share Fund (4.30%). In 2004 the Bank increased its capital from USD 4,000,000 to USD 13,000,000, represented by 13,000,000 ordinary shares, each having an issue price of USD 1 (2002: USD 10). On November 30, 2006, ACLEDA Bank raised its issued and paid-up capital from USD 13,000,000 to USD 30,000,000 (each share with 1 vote and participating equally in dividends and other distributions) (ACLEDA Bank website).

[190] Note that personal and housing loans are only available for personal banking while the other loans are available for business banking.

payments, cash consolidation accounts, payroll and overdrafts. Finally trade finance includes documentary collection and credit and bank guarantee.

Regarding lending products, ACLEDA Bank provides microbusiness loans to both individuals and groups. For individual loans, the borrower can choose the loan amount in Cambodian riel, Thai baht, or US dollars up to KHR 6,000,000, THB 60,000, or USD 1,500. For group loan borrowers, each member of the group can borrow up to KHR 1,500,000 or THB 15,000 (this is equivalent to USD 375 but note that group clients cannot receive loans denominated in US dollars). All other loans are exclusively for individuals and require collateral. Small business loans range from USD 1,500 to USD 10,000 (or the equivalent in KHR or THB). Medium business loans go up to USD 100,000 (or the equivalent in KHR or THB). Personal loans can go up to USD 30,000. Annual interest rates depend on the currency and the loan size. ACLEDA Bank reduced the interest rates of most loans in late 2007 as follows:

Table V-1: Comparison of Interest Rates– ACLEDA Bank, 2006 and 2007

Currency	Loan Size	Interest per month 2007	Interest per month (2006)	Annual Interest (31/Dec/2006)
Khmer Riel and Thai Baht	Up to KHR 1,500,000 Up to THB 15,000	3.00%	3.25%-3.50%	39% to 42%
	KHR 1,500,000 - 5,000,000 THB 15,000 - 50,000	3.00%	3.00%	36%
	KHR 5,000,000 to 6,000,000 THB 50,000-60,000	3.00%	2.00%-3.00%	24%-36%
	Greater than KHR 6,000,000 Greater than THB 60,000	2.75%	2.00%-3.00%	24%-36%
US Dollar	Up to USD 1,500	3.00%	3.00%	36%
	USD 1,500 – USD 10,000	2.00%	2.00%	24%
	USD 10,000 – USD 30,000	1.80%	1.20-2.00%	14.4-24%
	Greater than USD 30,000 *	1.50%	1.20-2.00%	14.4-24%

* For maximum loan period of 3 months, the interest rate is 1% per month

Sources: ACLEDA (2007: 49) and ACLEDA Website: Products Update 1 September 2007 and 1 October 2007 http://www.acledabank.com.kh/PN_productsUpdate.asp2007

The evolution of ACLEDA as rural finance provider has mirrored its evolution from a solely microfinance provider to a full commercial bank while maintaining its main target in clients with micro and small loan needs. Table V-2 shows that between 2000 and 2006, more than 95 percent of all ACLEDA clients with active loans remained those clients with either micro or small loans (although the share of clients with microloans is slowly decreasing in favor of

clients with small loans). On the other hand, Table V-3 shows that the share of micro and small loans in the total loan portfolio of ACLEDA has indeed decreased from 93 percent in 2000 to 53 percent in 2006, as a reflection of the new loan products created in a commercial bank business model.

Table V-2: Evolution of Clients with Microbusiness and Small Loans– ACLEDA Bank

	Clients with Micro-business Loans	Clients with Small Loans	Total Clients	% Clients Micro / Total Clients	% Clients Micro +Small / Total Clients
December 2000	49,232	11,474.00	60,860	81%	100%
December 2001	65,777	15,492.00	81,453	81%	100%
December 2002	65,414	16,897.00	82,982	79%	99%
December 2003	77,407	20,372.00	98,906	78%	99%
December 2004	91,566	27,311.00	122,173	75%	97%
December 2005	98,570	36,645.00	140,920	70%	96%
December 2006	126,289	25,289.00	159,930	79%	95%

Compiled from data supplied by email from Mr. Uch Sokhan (AVP & AMgt of Credit Management Unit, ACLEDA Bank Plc.) on 15/10/2007

Table V-3: Evolution of Portfolio Microbusiness and Small Loans– ACLEDA Bank

	Portfolio Outstanding Clients with Micro-business Loans	Portfolio Outstanding Clients with Small Loans	Total Portfolio Outstanding	% Portfolio Outstanding Clients Micro / Total Portfolio Outstanding	%Portfolio Outstanding Clients Micro + Small / Total Portfolio Outstanding
December 2000	17,444	42,874.33	65,085.91	27%	93%
December 2001	21,309	54,481.03	81,717.16	26%	93%
December 2002	25,235	65,236.51	108,262.67	23%	84%
December 2003	33,855	85,992.18	161,316.94	21%	74%
December 2004	47,331	129,495.46	265,706.41	18%	67%
December 2005	59,538	189,302.35	411,178.65	14%	61%
December 2006	133,832	209,611.94	642,888.21	21%	53%

Compiled from data supplied by email from Mr. Uch Sokhan (AVP & AMgt of Credit Management Unit, ACLEDA Bank Plc.) on 15/10/2007

As of the end of December 2006, 81 percent of ACLEDA Bank's loans were denominated in US dollars, 15 percent in Riel and 4 percent in Thai baht. Amounts in US dollars are only provided for individual loans while the loans in riel or Thai baht currencies may be either group or individual loans. In addition, given the dollarized economy in Cambodia, higher amounts are likely to be denominated in US dollars rather than in Riel. Thus, we can estimate that individual loans compose at least 81 percent of the portfolio and group loans

less than 19 percent.[191] Regarding the quality of ACLEDA Bank's loan portfolio, the non-performing loans at the end of December 2006 represented about 0.10 percent (USD 153,928) of the total loan portfolio while the non-performing loans at the end of December 2005 were about 0.16 percent (USD 159, 720) of the total loan portfolio.

Regulatory Framework for Microfinance Operators: Description and Implications

Description[192]

The "Law on Banking and Financial Institutions" was enacted in November 1999 and the government decree (prakas) for implementation was enacted in early 2000.[193] This legal framework recognizes three categories of banking institutions: commercial banks, specialized banks and MFIs.

- Commercial banks require a minimum registered capital of USD 13 million and can carry out all banking activities.
- Specialized banks require a minimum registered capital of KHR 10 billion (USD 2.5 million) and can carry out a limited number of banking activities as specified in the terms of their license.
- Microfinance institutions require a minimum registered capital of KHR 250 million (USD 62,500).

According to the prakas B7.02-49 on the Registration and Licensing of Microfinance Institutions, microfinance is defined as: "the delivery of financial services such as loans and deposits, to the poor and low-income households, and to micro-enterprises."

[191] Torres estimated that of total loans disbursed in 2002 and 2003, at least 65 percent were individual loans and less than 35 percent group loans. The corresponding figures for 2001 were: at least 72 percent of the portfolio as individual loans and less than 28 percent as group loans (2004:13). While the number of loans disbursed provides more accurate information than the percentage of loans outstanding, this dissertation has used the percentage of portfolio outstanding in order to compare more easily the figures with other MFIs.
[192] This section is based on NBC (2007a, 2007b, 2007c, 2006a, 2006b), Nayar & Ramm (2002), Kim Vada (2002) and the corresponding prakas. Throughout this section, the exchange rate applied to provide proxies in USD has been: 1USD = KHR 4,000.
[193] Prakas No. B 7-00-06.

Registration or licensing of microfinance providers is compulsory when microfinance operators meet *one or more* of the following conditions:

Table V-4: Registration and / or Licensing Requirements by the NBC

Activity	Registration by NBC	Licensing by NB
Credit	Loan portfolio outstanding ≥ KHR 100 million (~USD 25,000)	Loan portfolio outstanding ≥ KHR 1,000 million (~USD 250,000) *or* ≥ 1,000 borrowers
Savings	Voluntary savings mobilized: ≥ KHR 1 million (~USD 250) *or* ≥ 100 depositors	Voluntary savings mobilized ≥ KHR 100 million (~USD 25,000) *or* ≥ 1,000 depositors

Sources: Prakas No. B 7-00-06 of 11 January 2000, amended by Prakas 7.02-49 of 25 February 2002

Microfinance operations above the thresholds detailed above had (by law) to register or apply to the NBC for an operating license by 31 December 2002 (this deadline was later extended to July 2003 (Green 2003:5)); and if they chose not to register or apply for a license they had to downscale their operations and operate as a registered operator. On the other hand, if registration is denied or cancelled by the NBC, operators are to cease all microfinance activities within 3 months. Registered and licensed operators must report quarterly to the NBC; [194] in addition, licensed MFIs because they are Limited Liability Companies must pay taxes. Disciplinary measures, including fines, were stipulated for non-compliance. The regulation for licensed MFIs is very similar to commercial banks, except that the capital requirements are substantially lower. On the other hand, the regulation for registered microfinance operators is lighter and in particular reports sent to the NBC are simplified. Reporting requirements are monthly for licensed MFIs and quarterly for registered microfinance operators. The reports include asset and liability statement, profit and loss statement, statement of deposit and loan classified by currency and type; loan classification and branch network. The smallest microfinance operators can operate freely with no requirement to be regulated and supervised. As a result, within the Cambodian financial environment, the term *Licensed MFI* is applied specifically to those MFIs that are subject to the corresponding banking regulation and supervision from the Central Bank. Annex 14 provides the detailed description of the legal status of all current microfinance operators. [195]

[194] The reporting requirements for Registered NGOs and Licensed MFIs are regulated by prakas B 7-02-47 of 25 February 2002.

[195] Note that, compared with the figures from 2002, four previously registered organizations seem to have collapsed or reduce their portfolio in order to avoid the supervision of the Central Bank: Buddhism for Development (BFD); SAMAKITHOR; ARUNREAH and Help the Widow Organization (HTW).

Often, credit operations of NGOs (i.e. the registered microfinance operators and those smaller providers not subject to regulation by the central bank) are integrated with other programs such as health, education and community development. Many of the credit schemes are based on solidarity groups and after a few loan cycles, many groups disband either because of lack of interest of because members become dissatisfied with the quality of the service (NBC, 2006:8). Many of these smaller credit and savings schemes are not viable due to the lack of voluntary savings, their dependence on grants or funds with very limited duration, lack of professional management as well as lack of appropriate legal structure and external supervision. On the other hand, the largest licensed MFIs are the direct result of the transformations from programs of international or local NGOs into local MFIs and focus exclusively on financial services with a professional approach.[196] Other smaller licensed MFIs seem smaller local companies with marginal presence in rural areas.

Regarding licensing requirements and key prudential regulations for MFIs, note that while regulation allowed for the legal incorporation of the MFI as a Limited Liability Company or cooperative, all the currently licensed MFIs have become Limited Liability Companies and not cooperatives, forced by the fact that a law on cooperatives does not yet exist in Cambodia. Regarding key prudential regulations for MFIs, note that the provisioning regulation classified loans as 'substandard,' 'doubtful,' and 'loss' according to Table V-5 below. Please see Annex 15 for further information and a summary table on the licensing requirements and key prudential regulation for MFIs.

Table V-5: Provisioning Regulation by the NBC

Types of Loan	Definition	Provision requirements
Standard	Loans with payments of principal and interest on time	None
Substandard	Loans between 30-59 days past due	10%
Doubtful	(a) loans with original maturity <1 year that are 60-89 days past due (b) loans with original maturity >1 year that are 60-179 days past due	30%
Loss	(a) loans with original maturity <1 year that are past due for >90 days (b) loans with original maturity >1 year that are past due for >180 days	100 %

(Prakas B 7-00-51, amended by prakas 7-020145)

[196] The precursor of CREDIT (World Relief-CREDIT) initially also offered health education, but now solely provide microfinance services.

All microfinance operators, whether licensed or registered, are excluded from a range of financial sector activities including leasing, derivatives, gold and commodities dealing, the provision of cheque facilities and swap or forward dealing in foreign currencies.

Implications

Thus, through the regulatory framework, the NBC in effect enforced two main alternatives for microfinance operators in Cambodia: *licensing* for the 'medium-sized' microfinance providers or *registration* for the 'small' microfinance providers.

As it is commonly noted within the industry, the new regulatory environment forced the microfinance operators to decide whether they wanted to professionalize and upgrade their management and governance systems to meet the MFI licensing and prudential regulation. In this regard, it is important to highlight that all of the current main players were in operation before the 1999 regulation and that all of them opted for licensing. Currently, registration of all rural finance operators is not yet completed (EIC, 2007: 38-39).

Please refer to Annex 16 for the list of all licensed and registered microfinance operators reporting to the NBC and their corresponding clients and portfolio outstanding as of May 2007. Note that 13 registered NGOs show portfolios exceeding the threshold for licensing required by the NBC: Aid Farmers Association (AFA); Buddhism for Development Association and Supporting Environment (BDASE); Cambodia Mutual; Cambodia Credit to Abolish Poverty Organization (CCAPO); Cambodian Community Savings Federation (CCSF); Centre International du Credi Mutuel (CICM); Cambodia Rural Economic Development Organization (CREDO); Khmer Rural Development Association (KRDA); Ministry of Rural Development Credit Scheme (MRD Credit Scheme); Northwest Development Association (NWDA); Rural Development Association (RDA); Social Development in Rural (SDR) and; Women's Saving and Development Cooperative (WSDC). (At the end of 2001, there were 32 microfinance providers with portfolios exceeding the threshold for licensing with the NBC.)

As a general statement, the main microfinance providers have regarded the regulation as a positive step to guarantee the protection of depositors and to enable their growth. For instance, an FAO/APRACA workshop in Bangkok in February 2002 entitled "From NGO/Project to MFI" concluded that Cambodia had the most favorable regulatory framework for developing the microfinance sector and attracting foreign investment among the 12 South Asian and Southeast Asian countries covered by the workshop.[197]

Rural Finance and Microfinance Providers in Cambodia

While formal financial institutions in Cambodia must bear high operating costs, the operating expenses are even higher for rural finance and microfinance operators serving poor people in Cambodia. These higher costs are due to a number of factors, including poor infrastructure in rural areas, the lack of a rural banking system, high costs of communications, and high credit and security risks. The rural finance and microfinance sector also suffer the consequences of the inadequate legal and judicial system. Additionally, clients face a lack of market opportunities, which means that people only want very small loans.[198] For example, during 2002, AMRET (formerly EMT – one of the leading Cambodian MFIs), charged an annual interest rate of 48 percent which breaks down to 31 percent of operating costs, 15 percent of cost of funds and 2 percent of costs of business expansion.[199] In 2005, ACLEDA reported the figures of four of the five factors affecting their interest rates: the cost of funds was 10.5 percent, inflation ranged from 4-5 percent per annum, operational costs were 14 percent and the loan provision rate (the provisioning for the risk of default) was 5 percent. To these figures, ACLEDA adds the profit margin to calculate the interest rate. However, interest rates have declined in Cambodia from 5-6 percent per month in the early 1990s, 3-5 percent from 1998 to 2005 and to 2.5-3 percent in 2006 (NBC, 2006:10 and Kimsong, 2006:1).

[197] The workshop was attended by 32 senior and middle-level officers of policy making and regulatory bodies, wholesale financing institutions, microfinance institutions, NGO microfinance providers and government agencies from the twelve countries of Bangladesh, Bhutan, Cambodia, India, Indonesia, Lao PDR, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, and Thailand.
[198] See Williams et al. (2001:58). Providing small loans to many people is more expensive than providing larger loans to few people.
[199] The Second Commission of the Senate (2002): Minutes of Forum Discussion on Micro Credit in Cambodia, quoted in Kang Chandararot (2002: 2).

Currently there are at least 100 licensed, registered and unregistered microfinance operators within the formal and semiformal sector there are serving the rural populations in Cambodia.[200] Annex 16 provides the complete table of all microfinance operators reporting to the NBC. These include one commercial bank (ACLEDA Bank, with part of its portfolio targeting microentrepreneurs through microbusiness and small loans), 17 Licensed MFIs, 25 Registered NGOs and around 60 unregistered small lender bodies operating in Cambodia without any accreditation.

Of these operators only nine serve more than 10,000 borrowers and report loan outstanding in excess of KHR 10,000 Million (USD 2.5 million). These are: one commercial bank (ACLEDA Bank-Microbusiness) and eight licensed MFIs: AMRET, PRASAC, AMK; TPC; VISON FUND; CEB; HATTHA KAKSEKAR and CREDIT. These become the top-nine microfinance operators and will be analyzed in the next section.

The remaining nine MFIs that have become licensed but that show figures on loan outstanding similar to other registered MFIs are a mixed bag: two of the eleven remaining MFIs became licensed even when did not reach the threshold of number of 1,000 borrowers or KHR 1,000 million loan outstanding required for licensing: Tong Fang Microfinance, which became licensed in 2002 and Pisith Akphiwat Sethakech (PAS) which became licensed in 2005. Currently both of them remain below the threshold in both number of borrowers and portfolio outstanding. The other seven MFIs (while above the previously mentioned threshold) all have smaller balances, often closer to the sizes of the bigger registered NGOs, particularly regarding the number of clients served. Most of the remaining MFIs are new entrants in the pool of licensed MFIs but one of them (Seilanithih) was among the main top MFIs back in the first years of the century but has since slipped down the chart.

In 2004, the Cambodia Microfinance Association (CMA) was created with the objective of providing a common voice from the industry and support microfinance development a well as share information among members. The 14 members of CMA include all the licensed MFIs that constitute the top-nine microfinance providers (AMK, AMRET; CEB; CREDIT; Hattha Kaksekar; PRASAC; TPC; and VisionFund) plus 6 additional licensed MFIs: CBIRD; CHC; EAP; Intean Poalroath Rongroeurng; MAXIMA; and SEILANITHIH.

[200] According to the summary of the banking system in Cambodia as of May 2007 (Annex 13), there are at least 102 operators.

The four privately owned specialized banks (Peng Heng SME, Cambodia Agriculture Industry Specialized Bank (CAISB); First Investment Specialized Bank and ANCO Specialized Band are not classified as rural finance operators. Peng Heng SME, CAISB and the RDB (the fifth specialized bank, but state owned) reported briefly to the NBC network information of microfinance providers from 2002 to 2004 but their portfolio information was omitted as of December 2005. In addition, information from the RDB was rarely comparable since, as a wholesaler, they reported loan outstanding that had been on-lent to other microfinance operators reporting to the NBC, in effect double-counting in estimating the size of the credit market.

As a general review, microfinance operators in Cambodia use a variation of commonly known methodologies including solidarity groups, village banks, individual loans, mobile banking and branch office services. According to different sources, between 75 and 100 percent of microcredit clients are women and range from USD 50 to USD 500 for microloans and USD 500 to USD10,000 for small and medium loans and are distributed in Cambodian riels, US dollars or Thai baht (in the provinces near the Thai border). Loans are provided from 6 to 24 months and with interest rates of 2 to 3 percent per month, calculated on declining balance (Bun, 2007). However, a microfinance operator my charge different interest rate depending on the type or denomination of the product. For instance, PRASAC charges 24 percent to 42 percent per annum for individual loans but 36 percent to 42 percent per annum for group loans. Similarly, AMRET charges 3 percent to 3.5 percent per month for loans in KHR but 2.5 percent to 3 percent for loans in USD.

Main Rural Finance and Microfinance Providers: The Top Nine

The nine main players in the microfinance market in Cambodia ranked by the size of their loan outstanding portfolio as of May 2007 are the following:

1. ACLEDA Bank Plc (previously know as ACLEDA Bank Ltd and also as Association of Cambodia Local Economic Development Agencies (ACLEDA);
2. PRASAC (previously known as Prasac Credit Association (PCA));
3. AMRET (previously known as Ennatien Moulethan Tchonnbat (EMT));
4. CEB (Cambodia Enterprise Building, previously known as Cambodia Community Building (CCB) program);
5. TPC (previously Catholic Relief Services (CRS)- Thaneakea Phum Cambodia (TPC) program);
6. VisionFund (previously known as World Vision Cambodia or MED Programme);
7. Hattha Kaksekar (also known as Hattha or HKL);
8. AMK (Angkor Mikroheranhvatho (Kampuchea), previously known as Concern-TPT program);
9. CREDIT (previously known as World Relief-Cambodia Rural Economic Development Initiatives for Transformation (CREDIT).

Annex 17 provides a detailed list with their full legal name, the current acronyms used and their previous names or acronyms.

Note that in this section the information on ACLEDA has been restricted only to the portfolio of microbusiness loans (to both individuals and groups) and small loans to individuals. As was detailed starting in page 153, microbusiness loans have a maximum loan ceiling of USD 1,500 for individuals and USD 375 for group clients, while small business loans have a maximum loan ceiling of USD 10,000. For the purposes of estimating the supply of rural finance, the balance of ACLEDA will be only recorded for the loan portfolio equivalent to "microbusiness" and "small loans." This is consistent with the maximum loan ceiling of the other main MFIs. The loan ceiling for the largest loan in Hattha Kaksekar, PRASAC, and CREDIT is also USD10,000 while for AMRET, TPC, CEB and VisionFund is USD 5,000. AMK seems to serve a lower market segment, with a maximum loan ceiling of USD 500.

Thus, for the purposes of estimating the supply of rural finance, and applying only the loan portfolio equivalent to "microloans" and "small loans" for the case of ACLEDA, the top nine players serve 94 percent of the clients and capture 93 percent of all outstanding loans in the market. Details are shown in Table V-6 below.

Table V-6: Major Operators in Rural Microfinance (as of May 2007)

NAME	LS[1]	LOAN OUTSTANDING						DEPOSIT BALANCES		
		AMOUNT			No. BORROWERS		Aver. loan size (USD)	AMOUNT		No. SAVERS
		(Million Riels)	(Million USD[2])	%	TOTAL	%		(Million Riels)	(Million USD[2])	TOTAL
ACLEDA Bank - Micro + Small Portfolio	CB	384,547.10	$94.32	45%	159,659	24%	$591			
PRASAC (ex-PCA)	L	100,462.13	$24.64	12%	86,682	13%	$284	789.28	$0.19	3,081
AMRET (ex-E.M.T)	L	95,472.90	$23.42	11%	160,767	24%	$146	2,551.46	$0.63	131
CEB	L	58,963.27	$14.46	7%	17,014	3%	$850	2,668.04	$0.65	13,767
TPC	L	36,940.55	$9.06	4%	62,806	9%	$144	518.52	$0.13	40,845
VISION FUND	L	32,233.63	$7.91	4%	42,285	6%	$187	330.10	$0.08	9
HATTHA KAKSEKAR	L	30,012.42	$7.36	4%	13,445	2%	$548	1,328.78	$0.33	15,984
AMK	L	28,343.15	$6.95	3%	82,764	12%	$84	268.14	$0.07	7,149
CREDIT	L	26,781.00	$6.57	3%	12,683	2%	$518	4,457.00	$1.09	13,056
Total Main MFOs		793,756.15	$194.69	93%	638,105	94%		12,911.32	$3.17	94,022
Remaining (9) Licensed MFIs[3]	L	36,437.15	$8.94	0%	18,401	3%		2,003.88	$0.49	9,490
Other (25) registered NGOs	R	20,857.08	$5.12	2%	22,794	3%		2,598.11	$0.64	39,661
Total Other Microfinance Operators		57,294.23	$14.05	7%	41,195	6%		4,601.99	$1.13	49,151
TOTAL Regulated Microfinance Operators (reported NBC)		466,503.28	$11.68		35,477			17,513.31	$4.30	143,173
Grand TOTAL Regulated Microfinance Operators (reported NBC + ACLEDA)		851,050.38	$208.74		679,300					

Compiled from data supplied by the National Bank of Cambodia (NBC) Banking Supervision Department, May 2007 and from ACLEDA Credit Management Unit, October 2007 (personal communication).

1 LS = Legal Status: Commercial Bank (CB), L (Licensed MFI), R (Registered Microfinance Operator).
2 1 USD = KHR 4,077 (as of May 2007).
3 Remaining 9 licensed MFIs = TFMF, Seilanithih, FUDF, CBIRD, MAXIMA, IPRR, CHC, PAS and EAP.

Table V-6 ranks providers by the size of the loan outstanding. When the ranking is performed in terms of loan clients served the order changes to the following: AMRET; ACLEDA; PRASAC; AMK; TPC; Vision Fund; CEB; Hattha Kaksekar and CREDIT.

Please note that there is no current sector-wide information available on the quality of the portfolio of the operators in rural finance; the NBC has not reported on non-performing loans on either licensed MFIs or other registered microfinance operators.

Additionally, the figure of the deposit balances may include the amounts of voluntary and mandatory savings and further disaggregation of deposits between mandatory and voluntary savings is not available for all the existing operators.[201] Further, deposit information has not been collected from ACLEDA, because although it is possible to identify voluntary deposits in ACLEDA, it is not possible to identify how many of these are small scale savers.[202]

As the summary shows, the main nine microfinance operators dominate the market, holding 93 percent of all outstanding loans and serving 94 percent of the total borrowers. However, the three largest operators capture about 68 percent of all outstanding loans and serve around 60 percent of the market's clients. (It should be noted that these figures are only a rough estimate of the size of the market since a particular borrower might be a client of more than one institution.) ACLEDA Bank is the market leader, holding 45 percent of the total microfinance sector market share in terms of loans outstanding.

Table V-6 also highlights that, microfinance operators to date have not been particularly successful in mobilizing deposits and that the savings needs of rural populations are largely underserved. In fact, given the lack of savings options for the rural sector the micro*finance* sector in Cambodia can be more accurately described as a micro*credit* sector. The lack of confidence of the public in urban and rural areas in financial institutions is often mentioned as one of the main factors as well as the high costs of serving rural populations. Even though the difficulties in mobilizing deposits within Cambodia are not restricted to rural areas and

[201] Torres (2004) provided an incomplete summary of voluntary and compulsory deposits for specialized banks, MFIs and registered microfinance operators as of September 2003. The report is incomplete because information was not available for all microfinance operators. In addition, deposit balances did not match the reported figures of the "Network Information" compiled at the time EMT (currently AMRET) for EMT, Seilanithih, PRASAC, Maxima and ADDKN. In the case of PRASAC, deposits were nil in the "Network Information report" and Riel 24.84 million of voluntary savings according to the (incomplete) NBC report (2004:40).

[202] As of December 2006 ACLEDA had 141, 368 depositors. In deposit terms, 70 percent of the USD 123, 149,783 of deposits from customers belonged to individuals and 30 percent to enterprises and their savings can be held in current accounts, savings accounts, fixed deposits and margin deposits (i.e. the aggregate balance of required non-interest bearing cash deposits from customers for letters of credit and guarantees outstanding at year-end). However, it cannot be inferred that the deposit balance in individual accounts are "microsavers" or that their savings are small scale savings. Also note that of these four types of deposits, only savings accounts and fixed deposits bear interest.

few savings are kept within the formal sector, the costs of deposit mobilization in rural areas and from the poor segments of the population cannot be understated.

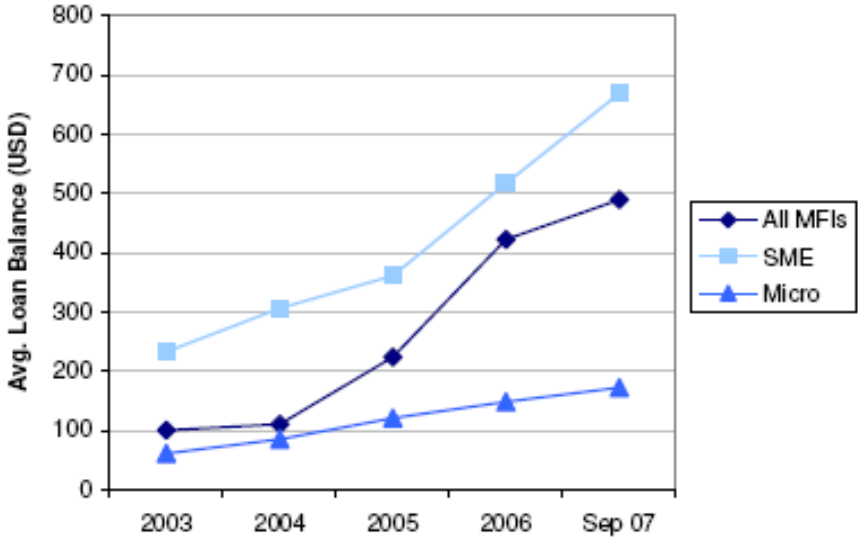
What is noteworthy is that, despite the great difference in outstanding portfolio held by ACLEDA Bank versus AMRET, the difference is not so great when it comes to the number of borrowers they serve. This is because of the difference in the average loan size a borrower holds from each of these institutions. The loan size is often used as a proxy for the level of wealth of the borrower; this is based on the assumption that only the poor will be interested in a small loan. Thus if the average loan size is small, that would imply that a larger percentage of the MFIs' clients are poor. In the Cambodian case, table V-6 shows that the average size of an ACLEDA Bank loan is USD 591 while the average size of an AMRET loan is USD 146. These figures seem to indicate that ACLEDA Bank targets (or reaches) wealthier individuals than does AMRET. A review of the range of loan sizes of each institution confirms this impression: while ACLEDA Bank's maximum loan sizes range between KHR 1,500,000 (USD 375) for group loans and USD 1,500 for individual loans in the most modest of its lending products (and up to USD 10,000 for small business loans; see previous section on ACLEDA Bank), AMRET's maximum group loan size cannot exceed KHR 600,000 (USD 150). AMRET's individual loans -which require physical collateral- have maximum loan sizes of USD 5,000 but terms up to 24 months.[203] While it is difficult to compare heterogeneous institutions (some concentrating on group loan products and others offering different types of products aimed at diverse types of clients) it is fair to tentatively say that the microfinance operators that target (or reach) wealthier clients are CEB, ACLEDA Bank, Hattha Kaksekar and CREDIT. Following the same logic, microfinance operators that tend to target (or reach) poorer populations are AMK, TPC, AMRET and VisionFund and, to a lesser extent, PRASAC. (Note that both lists follow the order of their respective average loan sizes.) Although the size of the loan alone does not provide all the information needed to categorize the clientele, much less give an indication of how effective and sustainable is a microfinance operator, it allows for some gross estimations of the objectives and goals of these institutions.

In 2002, Kim Vada, the Deputy Director Bank Supervision Department of the NBC, stated that some MFIs were gradually moving up market and getting into individual loans that may

[203] Neither ACLEDA nor AMRET have minimum loan sizes. AMRET's loan ceiling for the first cycle of group loans is Riel 100,000.

amount to as much as USD 10,000 (2002:3). This impression has been corroborated by the Cambodia Performance trends analysis (2003 to 2007) which shows outstanding loan balances more than doubling since 2003, with portfolio growth more rapid than growth in borrowers and many MFIs targeting higher income market segments. In fact, according to the report, the microfinance sector in Cambodia appears to be splitting into two groups: those MFIs maintaining a focus on small-balance loans and outreach, and other MFIs working with a mixed product offering of micro- and SME-loans (MIX, 2007:2). Figure V-1 below shows the increasing differences between these two groups.[204]

Figure V-1: Market Split between SME and Microloans



Source: MIX (2007:2) based on MIX Market Data 2003-2006, unadjusted

In order to further refine this analysis, Table V-7 below compares the main microfinance operators' mission, target group and methodology of these top nine microfinance operators in 2003 and in 2007. The definitions of the mission statement and the target group are an indication of the professionalism of the management and governance structure of an institution: a better definition evidences a more professional (senior) management and board of directors. The information regarding the professionalism of MFIs is important: unfortunately, there is a long history of organizations with very good intentions but very limited technical knowledge that can actually harm the poor either in the short term (by further indebting individuals that can literally not afford it) and or in the long term (by subsidizing interest rates and distorting the market, thereby reducing the chances that other

[204] The MFIs used in the MIX Market study were: ACLEDA, AMK, AMRET, CEB, CHC-Limited, CREDIT, HKL, IPR, Maxima, PRASAC, Seilanithih, TPC and VFC.

more sustainable MFIs will start programs in the area). Also, a more professional management and board may also provide an (albeit imperfect) indication of the likelihood of the operator's success and survival in the long term. Because of the many variations among the microfinance operators in terms of their credit delivery methodologies, this last column only differentiates between individual and group loans. Finally, in 2007 a line has been added specifying the denomination of loan products because, given Cambodia's dollarized economy, loans denominated in USD are more likely to correspond to larger loan sizes than those loans provided in KHR or THB.

Table V-7: Comparison - Mission, Target Group and Loan Products of Main MFIs (ordered by decreasing order of portfolio size as of 2007)

	2003	2007
ACLEDA Bank Plc. – [Only for microbusiness + small loans portfolio]	**Mission**: "To be the best quality service and the most trusted bank in Cambodia with financial strength, sustainable profits, progressive growth and the best governance." **Group reached**: Microentrepreneurs. **Loan products:** Group and individual loans (mostly individual) [Microbusiness and small loans represented about 74 % of the total portfolio)]	**Mission**: "To provide micro, small and medium entrepreneurs with the wherewithal to manage their financial resources efficiently and by doing so to improve the quality of their lives" **Group reached**: Microentrepreneurs. **Loan products:** Group and individual loans (mostly individual) [Microbusiness and small loans represented about 53% of the total portfolio]. **Maximum loan sizes (and denominations):** **Small Loans**: USD 10,000 (KHR, THB, USD) **Microloans: Individual loans**: USD 1,500 (KHR, THB, USD); **Group loans**: USD 375 (KHR, THB). **Monthly interest rates:** **KHR and THB**: Maximum 3%, minimum 2.75% **USD**: Maximum 3%, minimum 1.5%.
PRASAC (ex-PCA)	**Mission**: To create sustainable access to financial services for rural communities and microenterprises. **Target group:** rural communities and microentrepreneurs. **Loan products:** Group loans (54% of portfolio) and individual loans (46% of portfolio)	**Mission:** To contribute to sustainable rural economic development in order to improve the living standards of the rural people through creation of sustainable access to financial services for rural communities and micro-enterprises. **Target group:** rural communities for group loans and microentrepreneurs and small enterprises for individual loans. **Loan products:** Individual loans (89% of portfolio) and group loans (11% of portfolio). **Denomination of loan products**: KRH (53% of loan portfolio) and USD (47% of portfolio). **Maximum loan sizes (max. terms):** **Individual loans**: USD 10,000 (24 months) **Group loans**: USD 125 (12 months). **Monthly interest rates:** **KHR**: Maximum 3.5%, minimum 3%. **USD**: Maximum 3%, minimum 2%.

	2003	2007
AMRET (ex-EMT)	**Mission**: To provide financial services that are suitable for the needs of most of the rural population while ensuring EMT's long term sustainability. **Target group**: Rural populations. **Loan products: :** Group loans (94% of portfolio) and individual loans (6% of portfolio)	**Mission**: To provide financial services that are suitable for the needs of most of the rural population while ensuring AMRET's long term sustainability. **Target group**: Rural populations. **Loan products:** Group loans (70% of portfolio) and individual loans (30% of portfolio). **Denomination of loan products**: KRH and USD ("mostly in KHR"). **Maximum loan sizes (max. term):** **Individual loans**: USD 5,000 (24 months) **Group loans**: USD 150 (12 months). **Monthly interest rates:** **KHR**: Maximum 3.5%, minimum 2.5% (Phnom Penh) **USD**: Maximum 3%, minimum 2.25%.
CEB (formerly Cambodia Community Building, CCB)	**Mission**: To empower entrepreneurial poor women in urban and rural areas to develop income-generating activities and microenterprises through access to microfinance services, including credit and savings at reasonable rates. **Target group**: Entrepreneurial poor women in urban and rural areas. **Loan products:** Individual loans (a greater percentage of the portfolio; more often in USD than in KHR), Group loans (a smaller percentage of the total portfolio)	**Mission**: To empower entrepreneurial poor, especially women, in urban and rural areas to develop income-generating activities and microenterprises through access to microfinancing services, including credit and savings at reasonable rates. **Target group**: Entrepreneurial poor in urban and rural areas (particularly women). **Loan products:** Individual loans (99.8% of the portfolio) and group loans (1.2% of the total portfolio). **Denomination of loan products**: KRH (8% of loan portfolio) and USD (92% of portfolio). **Maximum loan sizes:** **Individual loans**: USD 5,000 **Group loans**: USD 500. **Monthly interest rates:** **KHR**: Maximum 3.5%, minimum 3% **USD**: Maximum 3%, minimum 2%.
TPC (formerly CRS/TPC: Catholic Relief Services/TPC)	**Mission**: TPC is a microfinance institution with a social vision and a business orientation that provides poor rural women with the economic opportunities to transform the quality of their lives and their communities through the provision of effective and sustainable client empowering financial services. **Target Group:** Poor rural women. **Loan products:** Group loans only	**Mission**: TPC is a microfinance institution with a social vision and a business orientation that provides poor rural women with the economic opportunities to transform the quality of their lives and their communities through the provision of effective and sustainable client empowering financial services. **Target Group:** Poor rural women. **Loan products:** Group loans (91% of portfolio) and individual loans (9% of portfolio) **Denomination of loan products**: KRH (79% of loan portfolio), THB (20% of portfolio) and USD (<1% of portfolio). **Maximum loan sizes (max. terms):** **Individual loans**: USD 5,000 (12 months) **Group loans**: USD 750 (12 months) **Monthly interest rates:** **KHR and THB**: 3% **USD**: Maximum 2.5%, minimum 2%.

	2003	2007
VisionFund Cambodia Ltd. – (formerly MED program World Vision International (Cambodia))	**Mission**: To transform poor microentrepreneurs' lives, build community and promote economic justice through affordable, accessible and sustainable microfinance services. **Target Group:** Poorest microentrepreneurs in the villages where World Vision has areas of operation. **Loan products:** Group loans (only): Most of the loans were from "village banks" but new "solidarity" loans were being introduced for the clients who graduate from the village bank loans.	**Mission:** VisionFund Cambodia is a Christian company that provides financial services to help the poor liberate themselves from poverty **Target Group:** Entrepreneurial poor **Loan products:** Group loans (92% of portfolio; of those about half belong to "solidarity groups" and half to "community banks")) and individual loans (8% of the total portfolio). **Denomination of loan products**: KRH (58% of loan portfolio) and USD (42% of portfolio). **Maximum loan sizes(max. term):** **Individual loans**: USD 5,000 (24 months) **Group loans**: USD 1,000 (18 months). **Monthly interest rates:** **KHR**: Maximum 3.5%, minimum 3% **USD**: Maximum 3.5%, minimum 2%.
Hattha Kaksekar	**Mission**: To promote income in agricultural, business and manufacturing enterprises within rural areas of Cambodia by curtailing the high interest rates on loans found in rural areas and supporting savings; and specifically targeting women and poor families in order to help them achieve a higher income. We intend to fulfill our mission through cost-efficient credit and savings methodologies, sound customer service and profitability to ensure growth and sustainability. **Target group**: Microentrepreneurs (preference for women microentrepreneurs) in urban and rural areas. **Loan products** Individual loans (nearly100%: as Hattha no longer provided group loans).	**Mission**: To improve income in agricultural, commercial and manufacturing enterprises in rural areas of Cambodia by providing loans at reasonable interest rates and encouraging savings and specifically targeting women and poor families in order to help them achieve a higher income. **Target group**: Microentrepreneurs (preference for women microentrepreneurs) in urban and rural areas. **Loan products:** Group loans (0.2% of portfolio) and individual loans (99.8% of portfolio). **Denomination of loan products**: KRH (5% of loan portfolio), THB (6% of portfolio) and USD (89% of portfolio). **Maximum loan sizes (max. term):** **Individual loans**: USD 10,000 (24 months) **Group loans**: USD 400 (12 months). **Monthly interest rates:** **KHR and THB**: Maximum 3.5%, minimum 3% **USD**: Maximum 3%, minimum 2%.
AMK (formerly Concern TPT)	**Mission**: To help large numbers of poor people in rural Cambodia to increase their livelihood options through the sustainable delivery of appropriate and viable microfinance services to the economically active poor. **Target Group**: The economically active poor. **Loan products: :** Group loans (only)	**Mission**: To help large numbers of poor people in rural Cambodia to increase their livelihood options through the sustainable delivery of appropriate and viable microfinance services to the economically active poor. **Target Group**: The economically active poor. **Loan products:** Group loans (84% of portfolio) and individual loans (16% of portfolio). **Denomination of loan products**: KRH (75% of loan portfolio), THB (24% of portfolio) and USD (<1% of portfolio). **Maximum loan sizes (max. term):** **Individual loans**: USD 500 (18 months) **Group loans**: USD 150 (24 months). **Monthly interest rates:** **KHR and THB**: Maximum 3%, minimum 2.5%.

	2003	2007
CREDIT (formerly World Relief Cambodia/ CREDIT)	**Mission**: Micro-entrepreneurs and farmers will have access to a full range of financial services at an affordable rate. **Target**: Microentrepreneurs and farmers both urban and rural (Customers are defined as "poor Cambodian women and their families, especially the unemployed and households with irregular income, both urban and rural"). **Loan products:** Group loans (80% of portfolio; of those 60% belong to "solidarity groups" and 20% to "community banks")) and individual loans (20% of the total portfolio).	**Mission**: To provide inclusive financial services tailored to the clients' needs through excellent service, and positive relationships while maintaining organizational sustainability. **Target**: Cambodia's poor entrepreneurs. **Loan products:** Individual loans (95% of portfolio) and group loans (5% of the total portfolio)[205] **Denomination of loan products**: KRH (29% of loan portfolio) and USD (71% of portfolio). **Maximum loan sizes:** **Individual loans**: USD 10,000 **Group loans**: USD 500. **Monthly interest rates:** **KHR**: Maximum 3.2%, minimum 2.5% **USD:** Maximum 3%, minimum 2%.

Compiled by author. Sources: Documentation, annual reports, brochures and personal communications

The summary table (Table V-7) shows that most of the top nine players have well-focused mission statements and clearly defined target groups. The information provided above is also rather consistent with the deductions explored earlier regarding loan sizes.

Those microfinance operators with bigger average loan sizes tend to have an emphasis on individual loans, while those that have smaller loan sizes tend to have an emphasis on group loans. Not coincidentally, the microfinance operators that target (or reach) entrepreneurs or microentrepreneurs tend to focus methodologically on individual loans and, given the Cambodian dollarized economy, provide their loans mostly in US dollars rather than in KHR. On the other hand, while group loans tend to be associated with reaching rural households rather than microenterprises per se (e.g. defining the target group as rural populations, poor rural women or the economically active poor), it is important to note that this is a false dichotomy: rural households often run micro-enterprises, in the form of farm and / or non-farm activities. It is the scale of the enterprise and the existence of physical collateral that highlights the distinction: the bigger the microenterprise and the assets of the household, the more likely it is that the borrower will require larger loan sizes and thus, and will also require individual loans denominated in US dollars rather than in KHR. Microfinance and rural finance providers concentrate on the needs of both households and microenterprises or microentrepreneurs. However, Small and Medium Enterprises (SMEs) have been included only as part of the background on the Cambodian financial sector. Within the Cambodian

[205] The figure quoted in the Financial Statement is the opposite (95 percent group and 5 percent individual). This is a mistake confirmed by personal communication with CREDIT's Finance Manager (Mr. Vibol HIM).

context, the average farmer is a subsistence farmer while the middle range farmer (who is likely to require agricultural machinery or capital-intensive inputs) is grouped under SMEs. Thus, the average farmer is covered by this rural finance review and the medium range farmer is not.

Interestingly, only three institutions had the same mission statement in 2003 and in 2007: AMRET, TPC and AMK and these three are precisely the main institutions identified in previous pages (see Figure V-1: Market Split between SME and Microloans) as the ones that tend to target (or reach) poorer population based on the analysis of their loan size.

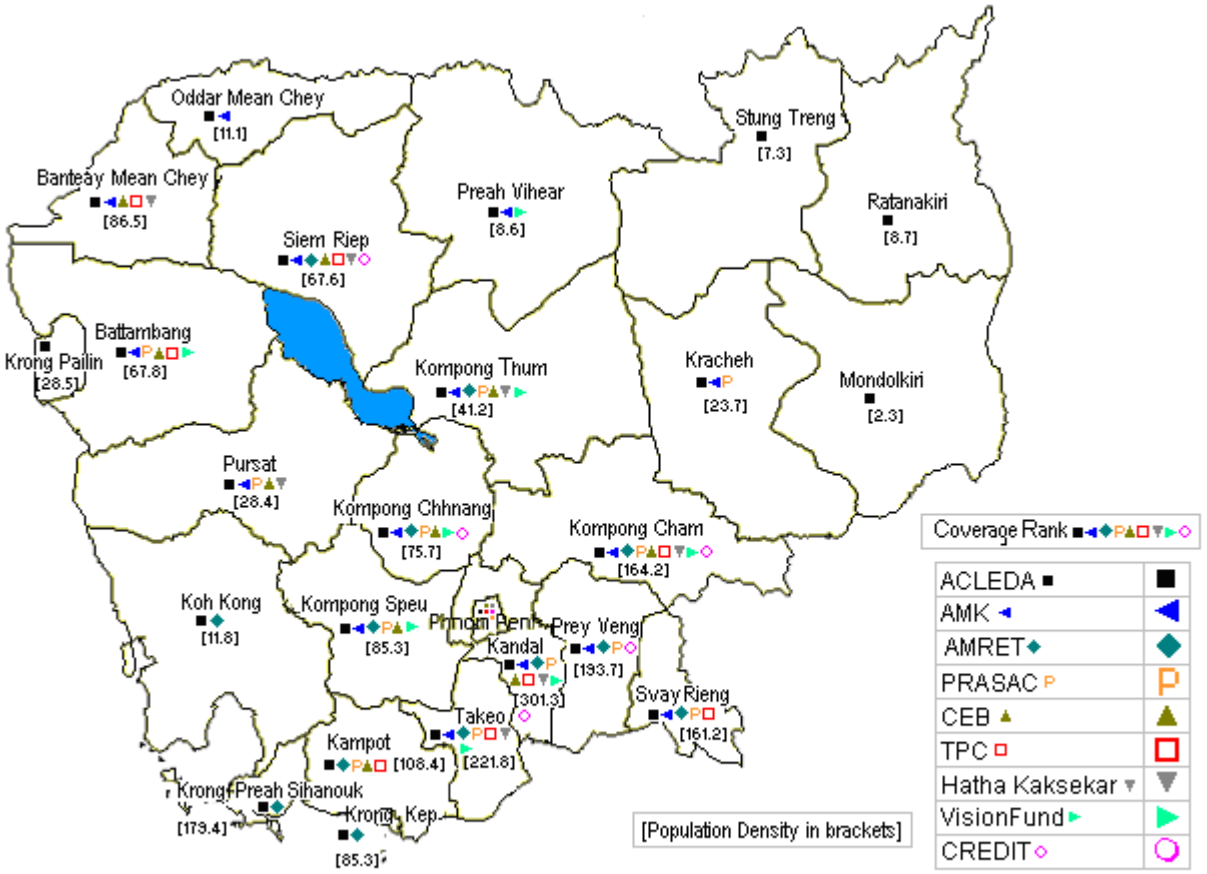
Having seen why the main microfinance providers are operating (their mission), who they target and how these clients are targeted or reached, the next relevant question is where they operate. Most microfinance providers are concentrated in the three economic centers of Cambodia:

(i) Phnom Penh and surrounding provinces (particularly Kandal),
(ii) the Sihanoukville area, and
(iii) the Tonle Sap lake area (particularly Battambang and Siem Reap).

Please refer to Annex 18 for a table of the provinces, districts, communes and villages covered by the top nine microfinance operators (as of June 2007).

An analysis of the geographic coverage of the top nine microfinance operators shows that the north (Oddar Mean Chey and Preah Vihear), northeast (Kracheh, Mondolkiri, Ratanakiri and Stung Treng), and the province of Koh Kong remain underserved. Figure V-2 in the following page shows the map of Cambodia and highlights the geographic concentration of the top nine microfinance operators in Cambodia.

Figure V-2: Geographic concentration of the top nine microfinance operators (June 07)



Compiled by author

A review of the poverty maps developed by MOP/WFP in 2002 identifying the specific communes in rural areas with higher poverty concentrations (Annex 18) shows that all the provinces with a high incidence of poverty are served by three or more of the main microfinance operators except the province of Oddar Meanchey and the municipality of Krong Kep.[206] However, this comparison does not allow for matching the specific distribution by district or by commune.

The concentration of microfinance providers in the south and central provinces of Cambodia and in villages with easy access to provincial towns has often been linked with poor security and poor infrastructure in other areas of the country (Uniconsult, 1999). Indeed, the main reason for the limited operators in the provinces in the north, northeast and Koh Kong seems to lie in the higher costs of operating there (poor infrastructure, high costs of communications, high security risks, etc.). However, Torres (2004) identified an additional cost component that could further explain why these provinces have been underserved: low population densities. The review of the population densities (according to the Population Census of 1998) reveal that most of the areas underserved by microfinance operators match exactly those areas with lower population densities. Concretely, sorting all the provinces of Cambodia by population density in ascending order it becomes evident that the seven least populated provinces (i.e. those with population densities below 25 inhabitants per Km2) are precisely the ones that are more underserved by the main microfinance operators (2004: 23).[207] Please see Annex 19 for the list of all the provinces and their corresponding population densities in ascending order. However, as is the case with the poverty maps, this population density ranking does not allow for matching the specific distribution by district or by commune.

[206] The provinces with the highest incidence of poverty are: Oddar Meanchey, Banteay Meanchey, Siem Reap, Kompong Chhnang, Pursat, Prey Veng, Svay Rieng, and Krong Kep. The 2004 CSES provided an update of provincial poverty rates is highest in Kampong Speu (57%), Kampong Thom and Siem Riep (52% each), followed by Kampong Cham, Prey Veng Banteay Meanchey (37% each); Svay Rieng (36%); Battambang (34%); Kampot (30%) and Takeo (28%). On the other hand, the lowest poverty incidence is in Phnom Penh (5%), Kandal (22%) and Kampong Som/Kep/Kok Kong (23%) (RGC, 2006: 55-56). Note that information is not directly comparable since Kampong Chhnang / Pursat are combined in the 2004 CSES sample to produce a poverty rate of 40% and Kratie, Mondolkiri, Preah Vihear, Ratanakiry, Stung Treng, Oddar Mean Chey and Pailin are also combined within the sample to produce a poverty headcount of 46%.

[207] The exceptions are the three cities/municipalities of Krong Pailin, Krong Kep and Krong Preah Sihanouk, which have higher population densities but are also underserved by microfinance operators (two or less than two operators in each).

However, from 2003 to 2007 there has been a great expansion in terms if geographical coverage, but it has not been uniform among different operators. Expansion can happen inside current provinces of operations or can happen in new provinces. Table V-8 shows the changes in provincial coverage between 2003 and 2007, highlighting these differences: AMK, ACLEDA, PRASAC, AMRET and CEB have undergone the most dramatic provincial expansion, followed by Hattha Kaksekar, while Vision Fund expanded at a slower rate, TPC remained stationary, and CREDIT actually reduced one area of operations (Takeo province).

Table V-8: Changes in Provincial Coverage from 2003 to 2007 (ordered by decreasing coverage as of June 2007)

	2003	2007
ACLEDA Bank	14	All 24 provinces
AMK	3	15
PRASAC	6	13
AMRET	6	13
CEB	5	11
TPC	9	9
VisionFund	7	8
Hattha Kaksekar	4	8
CREDIT	7	6

Analysis by author

Non-credit services

In addition to credit and (to a much lesser extent) savings services, there is a health insurance scheme called "SKY", a Khmer acronym of *"Sokapheap Krousat Yeugn"* or "Health for Our Families." The scheme was launched in 1998 by GRET (the French NGO that set up the microfinance project that eventually became AMRET) as an experimental rural health insurance program. The key objectives of SKY Health Insurance are: (1) secure the incomes of Cambodian households by limiting the economic consequences of large health expenditures (illness, accidents) and (2) facilitate and encourage these households' access to appropriate quality health care. In 2000, the SKY project received CGAP's *PRO-Poor Innovation Award* that acknowledges innovations in financial services for the poorest populations.

The evolution of the project can be divided in the experimentation process from 1997 to 2001, the second phase from 2002 to 2005, and the consolidation phase from mid-2005 onwards. The project started in Kandal province in 1998, extending to Takeo in 2001, to Phnom Penh in the end of 2005 and to Kampong Thom and the beginning of 2007. As of December 2006, the project insured 1,780 households (or 8,826 persons) charging a premium per year per capita of USD 4.54. The payment of the premium is on a monthly basis and it is based on family size (average family size in their areas of operation; 5.01) and registration is open throughout the year. The health insurance is a private scheme that follows a community based and voluntary membership's approach. The scheme requires that all family members are insured and covers both primary health care and hospital care (with a mandatory referral mechanism). While SKY works in partnership with public health facilities and with the Ministry of Health and health authorities at the provincial level, it is private and independent from health authorities or health providers.

The scheme is currently supported by AFD, GTZ and ILO under Memorandum of Understanding with the Cambodian Ministry of Health. The main challenge of the non-profit SKY for the coming years is to continue geographical expansion and to reach financial viability. In 2008, SKY plans to expand to the whole Takeo, Kampot and Siem Reap provinces and diversity its targeted population to include other groups such as garment workers or students.[208]

[208] The main design features of the SKY have been identified as: follows a community based and voluntary membership approach; covers the whole members of the family (family membership required); has a clear social mission and must be affordable for all rural households including large and poor families; follows a pragmatic membership's approach, taking into account rural households situation and enabling them to join the scheme easily; incites to stable / long term memberships (waiting periods, dropouts penalties, …) in order to limit anti-selection and enhance outreach of coverage for households; is designed in consultation with the direct beneficiaries in the villages; covers both primary health care and hospital care with mandatory referral mechanism; works in partnership with public health facilities through capitation payment mechanism and close monitoring (to enhance quality assurance and costs containment); is transparent / health insurance scheme's financial statements are shown in villages Health Insurance Consultative Committee (including elected insured representatives); works in partnership with Health authorities (MoH central and provincial level) to fit into national health policy and guidelines (GRET, 2007b:6-7).

Evolution of Microfinance in Cambodia from 2000 to 2006

Cambodia has been one of the most rapidly developing microfinance sectors in the world over the past few years.

The Cambodian Performance Trend 2003-2007 report compared Cambodia to other countries around the globe at similar stages of development: Bolivia and Bosnia-Herzegovina. The three are small countries with dense, competitive microfinance sectors and Bosnia further shares with Cambodia a history as post-conflict countries that benefited from substantial donor support at the early stages of the sector, have similar legal frameworks for microfinance and have seen rapid growth and increasing commercialization over time. Bosnia-Herzegovina and Cambodia also exhibit a growing split between microfinance and SME providers. Bolivia has the largest number of MFIs, while Bosnia and Cambodia have a similar number. The comparison shows that Cambodian MFIs reach a slightly higher portion of the population: they are ahead of Bolivia in total outreach but lag behind Bosnia (which has a much smaller low-income population overall). Yield levels are the highest in Cambodia (but have also seen the most rapid decrease, corresponding with the increase in loan balances). Financial expenses are similar (set at 4 – 6 percent), and they have been increasing as local and commercial financing replaces donor funds. Bolivia is by far the most leveraged (although many institutions can mobilize savings) and loan balances are the lowest in Cambodia, both in absolute and relative terms (MIX, 2007:4). See Annex 20 for additional benchmarks for the comparison of microfinance markets among these three countries.

A seven-year comparison of the market between the years 2000 and 2006 provides some relevant information: Tables V-6 to V-10 show the evolution of the microfinance and rural finance market for the regulated rural credit providers that report to NBC, plus the micro and small portfolio of ACLEDA Bank, at the end of the last seven years.

Tables V-9 to V-11 show that while the size of the total loan outstanding portfolio of regulated rural credit providers increased by 560 percent, the total number of borrowers increased only by 68 percent and the average loan size increased from USD 75 to USD 284. In terms of the top-

nine market leaders, the same tables show that the size of the total loan outstanding portfolio of the top-nine credit providers increased by 581 percent while the total number of borrowers increased only by 137 percent and that the average loan size increased from USD 103 to USD 284. These figures suggest that microentrepreneurs (and small enterprises) have benefited more than rural households from the increase in loans available to rural areas.

Table V-9: Evolution of Loan Portfolio Outstanding (as of 31 December each year)

	LOAN OUTSTANDING – AMOUNTS (Million Riels)							Variation 2000-06
	2000	2001	2002	2003	2004	2005	2006	
ACLEDA Bank	60,317.90	75,790.29	90,471.18	119,847.56	176,826.86	248,840.22	343,444.09	469%
PRASAC (ex-PCA)	13,026.65	13,600.00	25,241.00	26,546.00	33,992.50	*45,844.43**	89,416.25	586%
AMRET (ex-E.M.T)	10,724.66	12,500.00	16,446.20	22,237.22	31,245.76	46,504.64	71,166.90	564%
CEB (ex-CCB)	2,022.91	2,800.00	5,582.00	7,702.09	14,925.92	25,859.94	50,059.12	2375%
TPC (ex-CRS-TPC)	5,121.04	3,000.00	4,092.00	8,736.97	14,228.57	18,201.62	29,185.90	470%
VISION FUND (ex-World Vision)	2,171.92	2,171.92	1,095.00	2,040.00	6,299.52	14,169.00	24,321.82	1020%
HATTHA KAKSEKAR	4,484.07	5,900.00	5,566.75	5,660.10	9,553.23	15,095.68	24,142.23	438%
AMK (ex-CONCERN TPT)	836.65	1,900.00	2,436.00	3,272.00	4,850.56	10,174.86	21,407.78	2459%
CREDIT (ex-World Relief - Credit)	-	2,750.00	2,504.00	3,274.00	6,383.00	10,631.00	18,747.00	*582%*
Total top Microfinan Operators	98,705.80	120,412.21	153,434.13	199,315.94	298,305.92	435,321.39	671,891.09	581%
Other Licensed MFIs (At the moment of analysis)**			171.76	218.70	4,704.99	18,091.12	28,622.91	
Other registered NGOs/operators	9,965.23	10,928.25	9,384.32	11,060.37	8,990.74	9,544.75	16,952.04	
Total Other Microfinance Operators	9,965.23	10,928.25	9,556.08	11,279.07	13,695.73	27,635.87	45,574.95	357%
Grand TOTAL Regulated Microfinance Operators (MFIs reporting NBC + ACLEDA) [exc.RDB, Peng Heng, CAISB]* **	108,671.03	131,340.46	162,990.21	210,595.01	312,001.65	462,957.26	717,466.04	560%

Compiled by author from data supplied by the National Bank of Cambodia (NBC) Banking Supervision Department, May 2007 and from ACLEDA Credit Management Unit, October 2007 (personal communication).

**The PRASAC figure in 2005 (45,844) has been corrected from 33,992 originally reported in the in NBC data.*
**Other licensed MFIs refers to the remaining 9 licensed MFIs (TFMF, Seilanithih, FUDF, CBIRD, MAXIMA, IPRR, CHC, PAS, EAP) and refers to their status at the moment of the analysis.
***Grand TOTAL Regulated Microfinance Operators (reporting to NBC) excludes the specialized banks (Peng Heng, CAISB, and RDB), which were only reporting to the NBC in 2002, 2003 and 2004.

Table V-10: Evolution of Number of Borrowers (as of 31 December each year)

	NUMBER Of BORROWERS							Variation 2000-06
	2000	2001	2002	2003	2004	2005	2006	
ACLEDA Bank	60,706	81,269	82,311	97,779	118,877	135,215	151,578	150%
PRASAC (ex-PCA)	34,882	36,431	63,113	58,147	73,002	*82,545**	94,264	170%
AMRET (ex-E.M.T)	73,352	85,497	84,781	92,223	105,284	121,699	141,957	94%
CEB (ex-CCB)	5,250	7,265	6,014	7,063	8,493	11,119	15,112	188%
TPC (ex-CRS-TPC)	31,589	31,589	22,148	31,668	37,674	43,196	55,870	77%
VISION FUND (ex-World Vision)	17,303	17,303	8,863	12,577	20,189	25,347	35,289	104%
HATTHA KAKSEKAR	5,794	8,922	6,648	5,372	6,620	8,475	11,490	98%
AMK (ex-CONCERN TPT)	17,303	17,303	10,929	16,061	20,502	36,266	67,586	291%
CREDIT (ex-World Relief - Credit)		n/a	7,532	8,097	10,922	11,481	10,834	*44%*
Total top Microfinan Operators	246,179	285,579	292,339	328,987	401,563	475,343	583,980	137%
Other Licensed MFIs**			497	611	11,765	16,459	17,726	
Other registered NGOs/operators	124,298	128,823	34,434	32,707	26,998	20,918	20,881	
Total Other Microfinan Operat.	124,298.00	128,823.00	34,931.00	33,318.00	38,763.00	37,377.00	38,607.00	-69%
Grand TOTAL Regulated Microfinance Operators ***	370,477.00	414,402.00	327,270.00	362,305.00	440,326.00	512,720.00	622,587.00	68%

Compiled by author from data supplied by the National Bank of Cambodia (NBC) Banking Supervision Department, May 2007 and from ACLEDA Credit Management Unit, October 2007 (personal communication).

**The PRASAC figure in 2005 (82,545) has been corrected from 73,002 originally reported in the in NBC data.*

Table V-11: Evolution of Average Loan Sizes (as of 31 December each year)

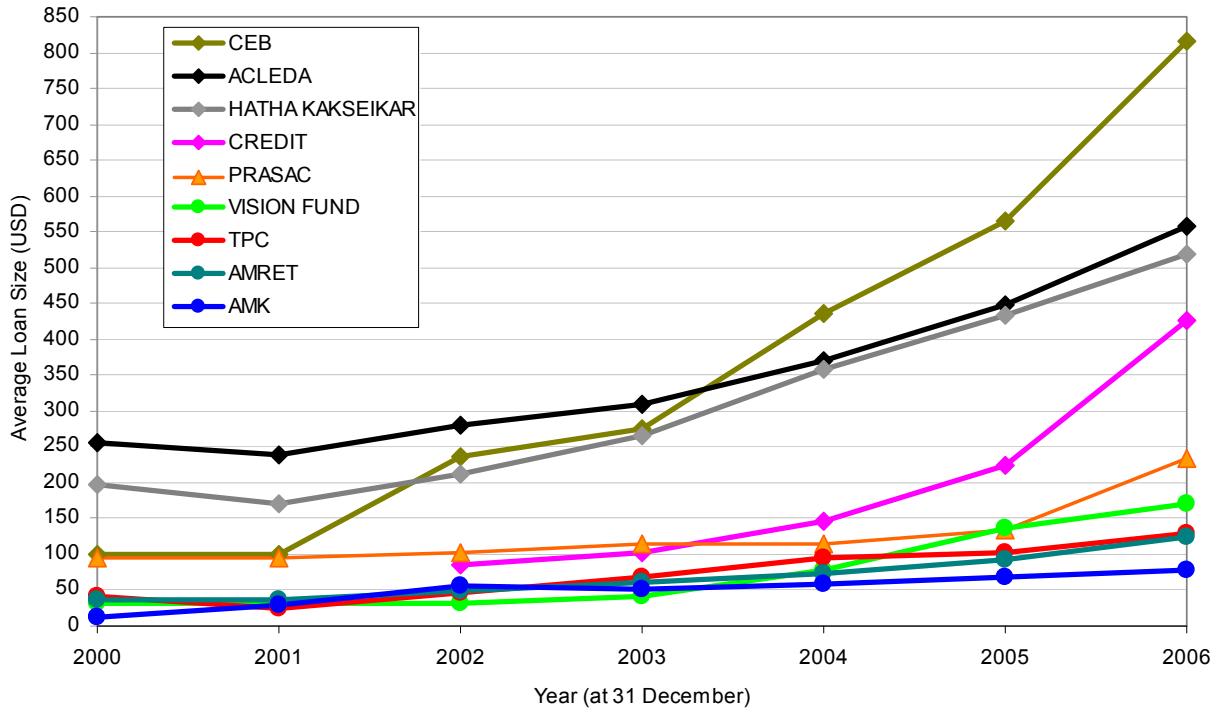
	AVERAGE LOAN SIZE (US Dollar)						
	2000	2001	2002	2003	2004	2005	2006
ACLEDA Bank	$255	$239	$280	$308	$369	$448	$558
PRASAC (ex-PCA)	$96	$96	$102	$115	$116	$135	$234
AMRET (ex-E.M.T)	$37	$37	$49	$61	$74	$93	$124
CEB (ex-CCB)	$99	$99	$236	$274	$436	$566	$817
TPC (ex-CRS-TPC)	$42	$24	$47	$69	$94	$102	$129
VISION FUND (ex-World Vision)	$32	$32	$31	$41	$77	$136	$170
HATTHA KAKSEKAR	$198	$170	$213	$265	$358	$433	$518
AMK (ex-CONCERN TPT)	$12	$28	$57	$51	$59	$68	$78
CREDIT (ex-World Relief - Credit)	n/a	n/a	$85	$102	$145	$225	$427
Total top Microfinan Operators	$103	$108	$134	$152	$184	$223	$284
Other Licensed MFIs*	n/a	n/a	$88	$90	$99	$267	$398
Other registered NGOs/operators	$21	$22	$69	$85	$83	$111	$200
Total Other Microfinan Operat.	$21	$22	$70	$85	$88	$180	$291
Grand TOTAL Regulated Microfinance Operators **	$75	$81	$127	$146	$176	$220	$284
* Note: NBC exchange rate at the moment of the analysis, 1USD=	3,900	3,900	3,930	3,976	4,027	4,112	4,057

Compiled by author from data supplied by the National Bank of Cambodia (NBC) Banking Supervision Department, May 2007 and from ACLEDA Credit Management Unit, October 2007 (personal communication).

For Both Tables:
*Other licensed MFIs refers to the remaining 9 licensed MFIs (TFMF, Seilanithih, FUDF, CBIRD, MAXIMA, IPRR, CHC, PAS, EAP) and refers to their status at the moment of the analysis
** Grand TOTAL Regulated Microfinance Operators refers to all MFIs and NGOs reporting to the NBC plus the micro and small loan outstanding balance of ACLEDA. The figure does exclude the specialized banks (Peng Heng, CAISB, and RDB), which were only reporting to the NBC in 2002, 2003 and 2004.

The analysis of the evolution of loan sizes of the top-nine microfinance operators, further confirms the two sub-groups highlighted in the previous section as of May 2007. The microfinance operators identified as the group targeting (or reaching) wealthier clients (i.e. CEB, ACLEDA Bank, Hattha Kaksekar and CREDIT) have been at the top of the scale during in the last 3 years. However, CEB, ACLEDA and Hattha Kaksekar have been consistently at the top of the scale since 2000 while CREDIT was actually reaching poorer clients in 2002 and 2003 and gradually started shifting towards higher loan sizes in 2004. It is noteworthy that during the last 3 years, CEB has surpassed ACLEDA on the largest average loan size and that Hattha Kaksekar has been at par with ACLEDA. As was also seen in the previous section, these group of operators reaching up-market seem to have focused on individual loans (rather than group loans) and in conducting transactions at their premises (rather than in the clients' villages) in order to lower costs and reach acceptable sustainability levels quicker.

Figure V-3: Evolution of Average Loan Size: Top-nine microfinance providers



On the other hand, the microfinance operators that tended to target (or reach) poorer populations (AMK, TPC, AMRET and VisionFund and PRASAC) have remained at the lowest segments of

the ranking scale in terms of average loan sizes. However, AMK, AMRET and TPC seem to focus more consistently on maintaining lower loan sizes while PRASAC and to lower extent Vision Fund seem to be moving slightly up-market (in relative terms). Note that changes are slow and tenuous, and thus, likely due to the introduction of new individual products rather than to a change on policy focus.

Figure V-4 shows the evolution of the average loan size by type of provider. As expected, the top-nine microfinance operators drive the whole market, which has seen a steady increase in the average loan size from 2000 to 2006. What is interesting is the evolution of the other non-top providers: During the last two years, other (non-top-nine) licensed MFIs provided larger loan sizes than registered NGOs and, more importantly, above the level of the overall market behavior. This seems to indicate that new entrants into the formal banking system tend to focus more on microentrepreneurs and small enterprises, with larger average loan sizes that on smaller livelihood loans for rural households.

Figure V-4: Evolution of Average Loan Size by Type of Provider

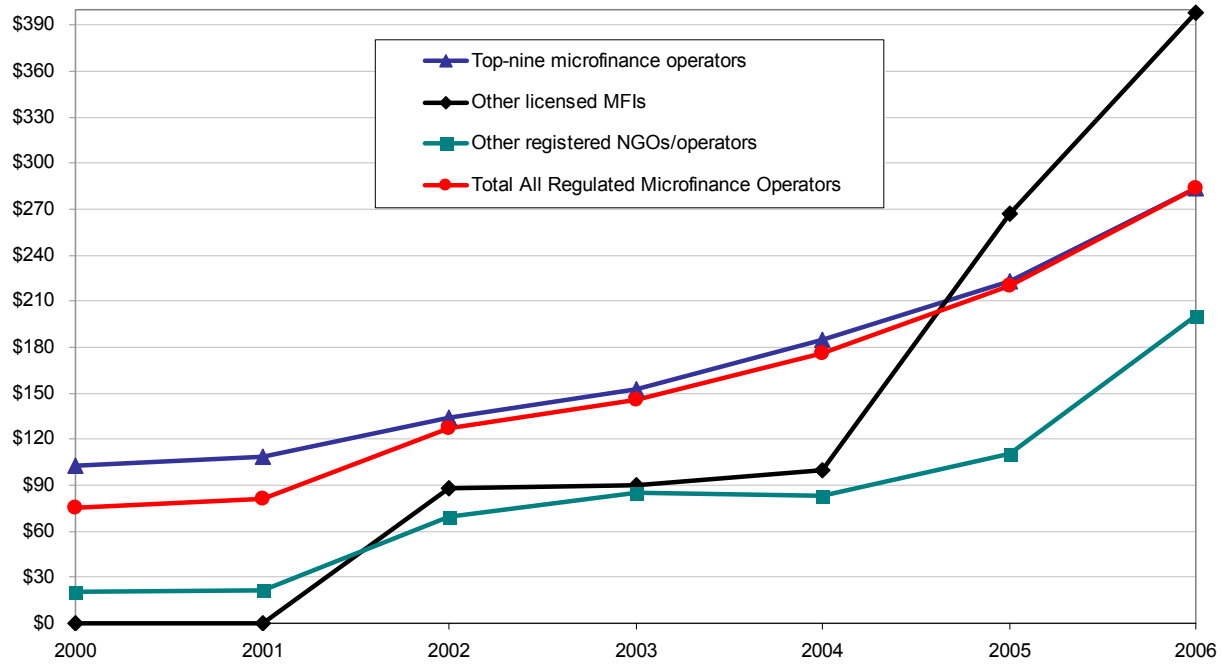


Figure V-5 shows the evolution in market share (but excluding ACLEDA micro and small loan portfolio) and Table V-12 shows the growth rates for all main operators during the period as well as their average rate of growth per year. The market leader in terms portfolio has always been ACLEDA (with 48 to 58 percent of the market share), with PRASAC and AMRET oscillating between second and third place. The most rapidly growing MFI in term of portfolio ranking has been CEB (from 2 percent of the market share in 2000 to 7 percent in 2006 and 73 percent of average growth per year in the seven years). AMK and Vision Fund have not changed much in the ranking position within the industry but have also grown at an average rate of 76 percent and 74 percent per year respectively during the period. CREDIT grew at an average of 52 percent per year and the other MFIs grew between 32 to 43 percent on average per year. The top-nine aggregated and the total rural finance providers grew at 38 percent per year on average.

Figure V-5: Evolution of Market Share of Loan Portfolio (excluding ACLEDA's micro and small portfolio)

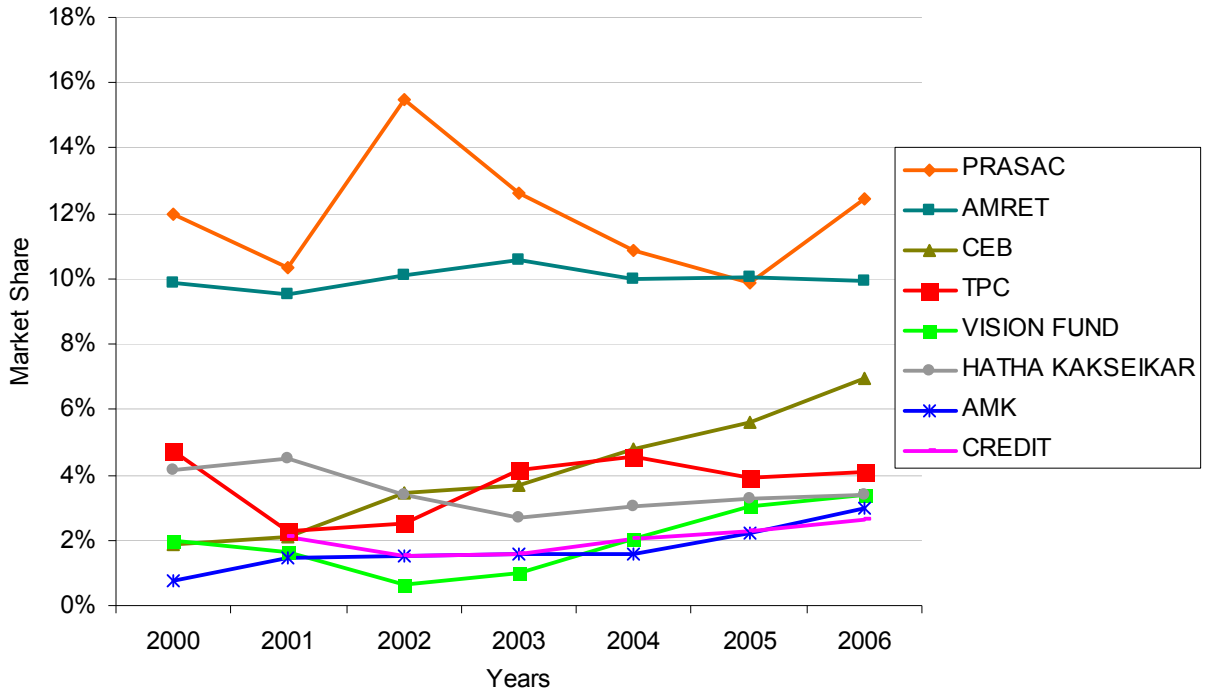


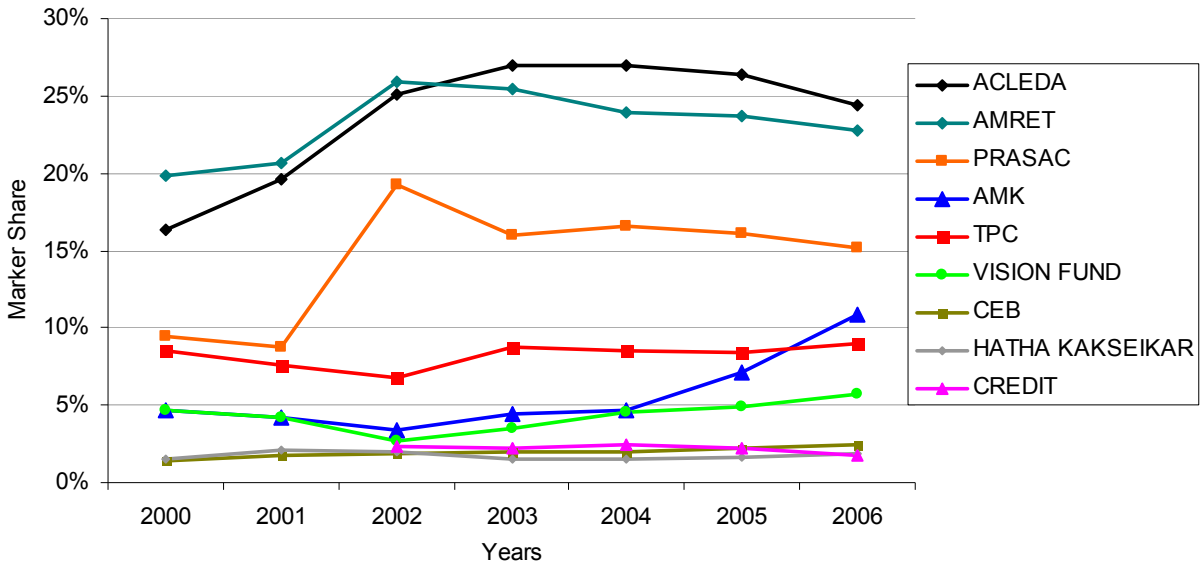
Table V-12: Evolution of Growth Rates: Loan Portfolio Outstanding

Growth Rates	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2000 to 2006 Yearly Average
ACLEDA	26%	19%	32%	48%	41%	38%	34%
PRASAC	4%	86%	5%	28%	35%	95%	42%
AMRET	17%	32%	35%	41%	49%	53%	38%
CEB	38%	99%	38%	94%	73%	94%	73%
TPC	-41%	36%	114%	63%	28%	60%	43%
VISION FUND	0%	-50%	86%	209%	125%	72%	74%
HATTHA KAKSEKAR	32%	-6%	2%	69%	58%	60%	36%
AMK	127%	28%	34%	48%	110%	110%	76%
CREDIT		-9%	31%	95%	67%	76%	52%
Total top-nine	22%	27%	30%	50%	46%	54%	38%
Other MF operators	10%	-13%	18%	21%	102%	65%	34%
Grand TOTAL	21%	24%	29%	48%	48%	55%	38%

Analysis by author with data supplied by the National Bank of Cambodia (NBC) Banking Supervision Department, May 2007 and from ACLEDA Credit Management Unit, October 2007 (personal communication).

Figure V-6 shows the evolution of market shares regarding number of borrowers reached and Table V-13 provides the growth rates in number of borrowers for all main operators during the period.

Figure V-6: Evolution of Market Share by Number of Borrowers



In terms of number of borrowers served the market leaders have been AMRET and ACLEDA, with PRASAC always remaining in the 3rd ranked position. In relative terms, AMK is the fastest growing MFI in terms of outreach: from 5 percent of the market in 2000 to 11 percent in 2006 -

becoming the 4th MFI in terms of borrowers and growing at the highest rate per year on average, (34 percent). The top-nine aggregated grew at 16 percent per year on average while the total rural finance providers grew at only 10 percent per year on average, with other microfinance operators showing a negative average growth rates per annum.

Table V-13: Evolution of Growth Rates: Number of Borrowers

Growth Rates	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2000 to 2006 Yearly Average
ACLEDA	34%	1%	19%	22%	14%	12%	17%
PRASAC	4%	73%	-8%	26%	13%	14%	20%
AMRET	17%	-1%	9%	14%	16%	17%	12%
CEB	38%	-17%	17%	20%	31%	36%	21%
TPC	0%	-30%	43%	19%	15%	29%	13%
VISION FUND	0%	-49%	42%	61%	26%	39%	20%
HATTHA KAKSEKAR	54%	-25%	-19%	23%	28%	36%	16%
AMK	0%	-37%	47%	28%	77%	86%	34%
CREDIT			8%	35%	5%	-6%	10%
Total top-nine	16%	2%	13%	22%	18%	23%	16%
Other MF operators	4%	-73%	-5%	16%	-4%	3%	-10%
Grand TOTAL	12%	-21%	11%	22%	16%	21%	10%

Analysis by author with data supplied by the National Bank of Cambodia (NBC) Banking Supervision Department, May 2007 and from ACLEDA Credit Management Unit, October 2007 (personal communication).

Interestingly, many providers show negative growth rates in the periods of 2001 to 2002 and 2002 to 2003 (even to a higher degree than the negative growth rates in portfolio outstanding). This is likely linked to the effect of the NBC's licensing processes, as most top-nine MFIs received their first licenses from the central bank from 2001 to 2003.

Annex 21 shows the ranking positions and market shares for the top-nine performers in terms of loan outstanding and number of borrowers.

Tables V-14 and table V-15 further confirm that the Cambodian microfinance sector can be more accurately described as a microcredit sector. ACLEDA is the market leader in deposits. However, as it was discussed previously, it is not possible to identify how many of the voluntary depositors in ACLEDA are small scale savers. The remaining microfinance operators have struggled throughout the period with investments and disinvestments in savings balances, likely the result of launching new products or canceling compulsory savings in order to start voluntary

ones, or simply as the variations in savings linked to loan products (compulsory loan-linked savings). When ACLEDA is excluded in the analysis, the size of the total deposit balances of regulated rural credit providers increased by 123 percent but the total number of borrowers decreased by 32 percent. In terms of the top-nine market leaders, the same tables show that the size of the total deposit balances increased by 173 percent while the total number of borrowers also decreased by 4 percent.

Table V-14: Evolution of Deposit Balance (as of 31 December each year)

	DEPOSIT BALANCE – AMOUNTS (Million Riels)							Variation 2000-06
	2000	2001	2002	2003	2004	2005	2006	
ACLEDA Bank	0.00	7,595.21	22,317.41	52,326.88	127,219.26	254,675.04	498,186.50	6,459%
PRASAC (ex-PCA)	915.44	915.44	0.00	0.00	0.00	0.00	976.67	7%
AMRET (ex-E.M.T)	54.50	200.00	261.64	459.00	724.44	794.49	1,337.71	2,355%
CEB (ex-CCB)	383.02	293.00	413.00	908.00	730.34	823.78	2,193.29	473%
TPC (ex-CRS-TPC)	1,553.74	1,100.00	625.00	1,158.00	1,627.66	2,077.58	561.03	-64%
VISION FUND (ex-World Vision)	41.19	41.19		0.00	24.19	2.49		-100%
HATTHA KAKSEKAR	199.22	300.00	302.77	248.00	392.34	700.36	1,043.35	424%
AMK (ex-CONCERN TPT)	0.00	406.00	244.00	0.00	14.11	46.99	172.46	-58%
CREDIT (ex-World Relief - Credit)	-	-	472.00	426.00	755.00	1,454.00	2,317.00	*391%*
Total top Microfinan Operators	3,147.12	10,850.84	24,635.82	55,525.88	131,487.34	260,574.73	506,788.01	16,003%
Total top-8 (excluding ACLEDA)	3,147.12	3,255.63	2,318.41	3,199.00	4,268.08	5,899.69	8,601.51	173%
Other Licensed MFIs*			0.00	0.00	793.37	1,206.62	1,650.78	
Other registered NGOs/operators	2,210.73	2,925.64	1,119.27	4,575.92	877.60	1,128.42	1,702.64	
Total Other Microfinan Operat.	2,210.73	2,925.64	1,119.27	4,575.92	1,670.97	2,335.04	3,353.42	52%
Grand TOTAL Regulated Microfinance Operators **	5,357.85	13,776.48	25,755.09	60,101.80	133,158.31	262,909.77	510,141.43	9,421%
Grand TOTAL Regulated Microfinance Operators (excluding ACLEDA)	5,357.85	6,181.27	3,437.68	7,774.92	5,939.05	8,234.73	11,954.93	123%

Compiled by author from data supplied by the National Bank of Cambodia (NBC) Banking Supervision Department, May 2007 and from ACLEDA Credit Management Unit, October 2007 (personal communication).

*Other licensed MFIs refers to the remaining 9 licensed MFIs (TFMF, Seilanithih, FUDF, CBIRD, MAXIMA, IPRR, CHC, PAS, EAP) and refers to their status at the moment of the analysis

** Grand TOTAL Regulated Microfinance Operators refers to all MFIs and NGOs reporting to the NBC plus the micro and small loan outstanding balance of ACLEDA. The figure does exclude the specialized banks (Peng Heng, CAISB, and RDB), which were only reporting to the NBC in 2002, 2003 and 2004.

Table V-15: Evolution of Number of Savers (as of 31 December each year)

	NUMBER Of SAVERS							Variation 2000-06
	2000	2001	2002	2003	2004	2005	2006	
ACLEDA Bank	-	3,836	19,070	35,054	57,091	92,413	141,368	*3,585%*
PRASAC (ex-PCA)	43,729	43,729	-	-	0	0	2,937	-93%
AMRET (ex-E.M.T)	41	5,817	45	87	93	102	91	122%
CEB (ex-CCB)	5,250	5,250	6,014	7,063	8,493	11,119	13,222	152%
TPC (ex-CRS-TPC)	21,448	21,448	25,382	45,762	64,326	83,906	43,949	105%
VISION FUND (ex-World Vision)	17,303	786		0	389	63		-100%
HATTHA KAKSEKAR	6,526	6,526	7,932	7,495	8,131	9,902	14,209	118%
AMK (ex-CONCERN TPT)	0	8,076	15,840	0	709	2,179	5,110	-37%
CREDIT (ex-World Relief - Credit)	-	-	7,532	4,016	10,922	11,481	11,024	*46%*
Total top Microfinan Operators	94,297	95,468	81,815	99,477	150,154	211,165	231,910	146%
Total top-8 (excl. ACLEDA)	94,297	91,632	62,745	64,423	93,063	118,752	90,542	-4%
Other Licensed MFIs*			0	0	11,097	8,214	8,932	
Other registered NGOs/operators	71,698	56,024	25,305	24,023	18,795	12,429	13,843	
Total Other Microfinan Operat.	71,698	56,024	25,305	24,023	29,892	20,643	22,775	-68%
Grand TOTAL Regulated Microfinance Operators **	165,995	151,492	107,120	123,500	180,046	231,808	254,685	53%
Grand TOTAL Regulated MF Operators (exc. ACLEDA)	165,995	147,656	88,050	88,446	122,955	139,395	113,317	-32%

Compiled and produced from data supplied by the National Bank of Cambodia (NBC) Banking Supervision Department, May 2007 and from ACLEDA Credit Management Unit, October 2007 (personal communication).

*Other licensed MFIs refers to the remaining 9 licensed MFIs (TFMF, Seilanithih, FUDF, CBIRD, MAXIMA, IPRR, CHC, PAS, EAP) and refers to their status at the moment of the analysis

** Grand TOTAL Regulated Microfinance Operators refers to all MFIs and NGOs reporting to the NBC plus the micro and small loan outstanding balance of ACLEDA. The figure does exclude the specialized banks (Peng Heng, CAISB, and RDB), which were only reporting to the NBC in 2002, 2003 and 2004.

Therefore the main three conclusions of the evolution of microfinance market in Cambodia from 2000 to 2006 are the following:

- Microentrepreneurs (and small enterprises) seem to have benefited more than rural households from the increase in loans available to rural areas. In addition, new entrants into the formal banking system tend to focus more on microentrepreneurs and small enterprises (with larger average loan sizes that on smaller livelihood loans for rural households).
- Confirmation of a two sub-groups in microfinance operators. The MFIs that target (or reach) wealthier clients within the microfinance and rural finance market are: CEB, ACLEDA Bank, Hattha Kaksekar and CREDIT. On the other hands, the MFIs that target (or reach) poorer populations are mainly AMK, TPC and AMRET, followed by VisionFund and PRASAC.
- The Cambodian microfinance sector can be more accurately described as a microcredit sector.

Chapter VI - CONCERN WORLDWIDE AND ANGKOR MIKROHERANHVATHO KAMPUCHEA (AMK)

This chapter covers the main features of Concern Worldwide (an international NGO), Concern's operations in Cambodia and its connection to the current microfinance institution: AMK. The section concentrates in describing in depth AMK: its history, objectives and aims, structure, areas of operation and methodology. Finally, the last section of the chapter also provides a profile of AMK's clients and the villages where they live.

Concern Worldwide and Concern Worldwide Cambodia

Concern Worldwide is a non-denominational voluntary organization. Concern Worldwide was born in 1968 as a humanitarian response to the famine in Biafra, which resulted from the Nigerian civil war. On March 19, 1968, a group of concerned individuals who called themselves "Africa Concern" joined together to launch a 'Send One Ship' Appeal (SOS).[209] In 1972 Africa Concern began to work in Bangladesh and became simply, Concern. Later it added the word 'worldwide' to reflect the organization's increased global presence.

Currently Concern operates in about 28 countries mostly in Africa and Asia and works in both emergency and long-term development programs with a focus on five key areas: education; emergencies; health; HIV and AIDS and livelihoods. The organization headquarters are in Dublin, Republic of Ireland but it has offices in Belfast, London, Glasgow and an affiliate organization in New York (Concern US) (Farmar, 2002 and www.concern.ie).

Concern's mission is to enable absolutely poor people to achieve major improvements in their lifestyles which are sustainable without ongoing support from Concern. To this end, Concern works with the poor themselves and with local and international partners who share its vision to

[209] The goal of the appeal was to send one ship, loaded with relief supplies, from the people of Ireland to those suffering in Biafra. Donations in cash and kind poured in and within twelve weeks $350,000 had been raised. Other ships loaded with supplies soon followed.

create just and peaceful societies where the poor can exercise their fundamental rights. Thus, Concern bases its work on the principle that development is a process which occurs in people, proceeds at their pace and is achieved, not given. The intent is that Concern's overseas projects will benefit a range of social groups within the category of the absolute poor. These target groups will include people reduced to extreme poverty by exceptional natural or man-induced events, poor ethnic groups, poor regions, poor strata of society and other identifiable groups such as refugees and displaced people, low-resource farmers and the landless, the urban poor, and socially disadvantaged women and children. The highest aspiration of Concern is that its work will no longer be necessary. Most recently, Concern has started a partnership with the International Food Policy Research Institute (IFPRI) regarding nutrition and hunger. Concern will celebrate the 40th anniversary of its foundation in 2008.

Concern has been working in Cambodia since 1989 (following some years in the Thai border camps). Initial programs focused on repatriation of refugees from camps in Thailand and rehabilitation of rural infrastructure. In recent years, Concern has moved from directly implementing programmes on education, forestry and livelihoods to working exclusively through about 17 local partner organizations.

Up to 2003, Concern also facilitated the creation of rice and buffalo banks and offered small loans to poor villages as part of its directly implemented programmes. These savings and loans activities were the precursor of AMK: activities started in 1993 but became an independent program directly implemented by Concern Worldwide Cambodia (and separated from the community development work) by 1999. The program worked in three provinces identified as poorest in Cambodia at the time: Banteay Meanchey, Kampong Speu and Pursat.

When the national savings and credit program officially started in 1999, it was decided to develop the programme into an independent Cambodian MFI. The following section documents in detail this transformation process into Angkor Mikroheranhvatho (Kampuchea), AMK

Angkor Mikroheranhvatho Kampuchea (AMK)

History

Angkor Mikroheranhvatho (Kampuchea) Co. Ltd (AMK)[210] grew out of Concern's Worldwide's savings and credit activities in Cambodia, which started on a small scale in 1993.

From 1997 to 1999, savings and credit activities were separated from the community development work and became one of the programs directly implemented by Concern Worldwide Cambodia. Using a modified village bank approach, the National Savings and Credit Program started its operations in 1999 in three provinces identified as poorest in Cambodia (Banteay Meanchey, Kampong Speu and Pursat). In January 2001, the program name was changed to Thaneakea Ponleu Thmey (The Bank of the New Shining Light, TPT).

The vision of Concern -TPT was of a "Cambodia where there is peace and freedom and where people no longer live in poverty." Accordingly, Concern-TPT's mission stated that "we are a microfinance service provider committed to reducing poverty in a lasting way by providing sustainable and appropriate services targeting the poorest. To achieve this, we will establish an independent MFI." Concern-TPT's goals were twofold: "to assist poor families to increase their income through productive economic activities" and "to establish an operationally and financially sustainable microfinance institution that offers microfinance services appropriate to the poor." In January 2002, Concern-TPT was registered as a "Rural Credit Operator" with the National Bank of Cambodia (NBC) and in October of the same year, TPT changed its target group to the Economically Active Poor (EAP), defined as "those poor with at least one economic activity or business (that enables them to repay the loan)." In contrast, the poorest or the destitute were defined as those who "either lack productive assets or who are not capable of carrying out income-generating activities."

[210] Unless otherwise indicated, the information about the AMK Co. Ltd. and Concern-TPT program draws from the respective Manual of Operations, internal documentation, AMK's Institutional Overview, interviews, field notes and AMK website.

This change in the target group merits further explanation. Originally, the programme was designed to meet the needs of low-income families in rural areas and aimed at reaching 90 percent of the poorest in each village where it operated. The objective was that 70 percent of total members belonged to the poor and poorest categories with the poor being defined by TPT's wealth ranking procedures. However, in practice, the majority of TPT clients belonged to the "economically active poor" rather than the poorest of the poor. At the same time, the Post Conflict Microfinance Research (Williams et at., 2001) suggested that people who took loans from TPT were suffering greater hardship after the floods in Pursat. This confirmed both international and local staff's experience that the destitute with no economic activity could not be helped by loan programs and that they required welfare or a grants system. Henceforth, the target group became "100 percent of total members are Economically Active Poor (EAP) people or individuals."[211] There are no requirements for gender but women are encouraged to participate and currently represent 84 percent of AMK's client base.

The process of developing the Concern-TPT program into an independent Cambodian Microfinance Institution (MFI) started in 2002, following the new Cambodian microfinance regulation that stipulated the creation of a separate company and obtaining an MFI license once the outstanding loan portfolio exceeded KHR 1,000 million (equivalent to approx. USD 250,000). The bulk of this transformation process took place during the second part of 2002 and 2003. The name was changed to Angkor Mikroheranhvatho Kampuchea (AMK), the new institution was registered as a Limited Liability Company with the Ministry of Commerce and the physical separation of all assets and liabilities from Concern was completed. On the operational front of this transformation process, AMK Co. Ltd redefined its focus, constituted and strengthened its Board of Directors, recruited new staff members, and began the task of upgrading systems and policies in line with the needs of a financial institution. By mid 2004, AMK obtained its license as an MFI from the Cambodian central bank.

[211] For the sake of international comparison, it was also established that the "poor" were those individuals trying to live on less than USD 1 a day, and most definitely below USD 2 a day. Note that the term "poor" in this context includes both the EAP and the destitute. Note that following this change in the targeting definition, the clients' loan eligibility criteria included that: the individual was willing to be part of a solidarity group, belonged to the economically active poor people; and was not highly indebted.

From 2004 to 2007, AMK expanded both its financial products and its geographical coverage from the original 3 provinces of operation to a total coverage of 15 provinces. AMK received the CGAP Financial Transparency Award in 2005 and 2006 becoming the only Cambodian MFI and one of three MFI's globally to receive the award for the second year in a row. The highlights of this evolution are summarized in Table VI-1 below

Table VI-1: Highlights of the Evolution of AMK Co. Ltd.

Year	Main Highlights
1993-98	Concern Cambodia pilots models of savings and credit activities, separates savings and credit from community development work, and decides to be a direct implementor of savings and credit.
1999	Official start of the "National Savings & Credit Programme;" Decision to develop the programme into an independent Cambodian MFI.
2001	Renamed the programme "Thaneakea Ponleu Thmey" (The Bank of the New Shining Light, TPT).
2002	**Jan 02**: TPT is registered as a "Rural Credit Operator" with the central bank; **Oct 02**: Change in the target group to the Economically Active Poor (EAP); Appointment of two shareholders in order to register as a company with the Ministry of Commerce.
2003	**Apr 03**: Redefinition of the mission statement; **20 May 03: Angkor Mikroheranhvatho (Kampuchea) Co. Ltd (Angkor Microfinance Kampuchea, AMK) is registered as a Limited Liability Company with the Ministry of Commerce;** **1 Jul 03**: Physical separation of all assets and liabilities completed; signature of Framework Agreement between AMK Ltd and Concern Worldwide Ltd; **Nov 03**: Board of Directors ratifies new guiding principles.
2004	Introduction of repayment in installments for group loans and pilot of individual loans (Jan 04) and voluntary savings product (Sept 04). **May 04**:**Granted the MFI license by the National Bank of Cambodia** (the central bank)
2005	Expanded to two new provinces: Battambang and Siem Reap. Interest rate in group loans with repayments in installments reduced from 3% to 2.8% (Jan 05) and introduction of two new loan products Emergency Loans and Credit Lines for group clients (Sept 05); Establishment of the Social Performance Committee.
2006	Expanded operations to four new provinces: Kampong Cham; Kampong Chhnang; Kampong Thom; and Oddar Meanchey; Awarded the CGAP Global Financial Transparency Award (for 2005); Selected to participate in Imp-Act Consortium Global Action Research Programme and became a member of the Social Performance Task Force.
2007	Expanded operations to six new provinces: Kandal; Kratie; Preah Vihear; Prey Veng; Svay Rieng; Takeo; Awarded CGAP Financial Transparency Award (for 2006).

Source: AMK Annual Reports 2004, 2005, 2006

AMK Vision, Mission and Guiding Principles

The long-term vision of AMK is of a Cambodian society **'**where citizens have equal and sufficient economic and social opportunities to improve their standards of living, and where they can contribute productively towards the overall development of the country'.

AMK's priority is to balance operational and financial sustainability with social objectives and thus, AMK's mission statement has been defined as: 'to help large numbers of poor people in rural Cambodia to increase their livelihood options through the sustainable delivery of appropriate and viable microfinance services to the economically active poor'.

AMK's guiding principles reflect the overall operating framework of the institution and are the following:

- provide microfinance services to poor people in Cambodia that are grounded in sound financial discipline at all levels.
- be committed to openness and transparency in all areas of management and operations.
- be committed to developing processes/services and to adopting behaviors and standards that ensure client protection.
- be a learning organization where appropriate exchange and sharing of information will contribute to staff development, training and in policy & systems improvements.

As an extension of its guiding principles, during 2005 AMK adopted a Code of Practice for Client Protection to formally ensure fair and equal treatment of clients. This code is monitored through both the internal audit and social research findings. The code of practice refers to the following five aspects:

- Minimizing the exclusion of the poor who meet AMK's other criteria for selection.
- Minimizing the exposure of (poor) clients to financial products that may prove harmful if they promote over-indebtedness.

- Providing complete information to clients about policies and procedures, and ensuring complete transparency in transactions.
- Facilitating/Promoting complete freedom of choice to clients.
- Ensuring appropriate and respectful behavior towards clients of staff and management.

Ownership, Governance and Management Structure

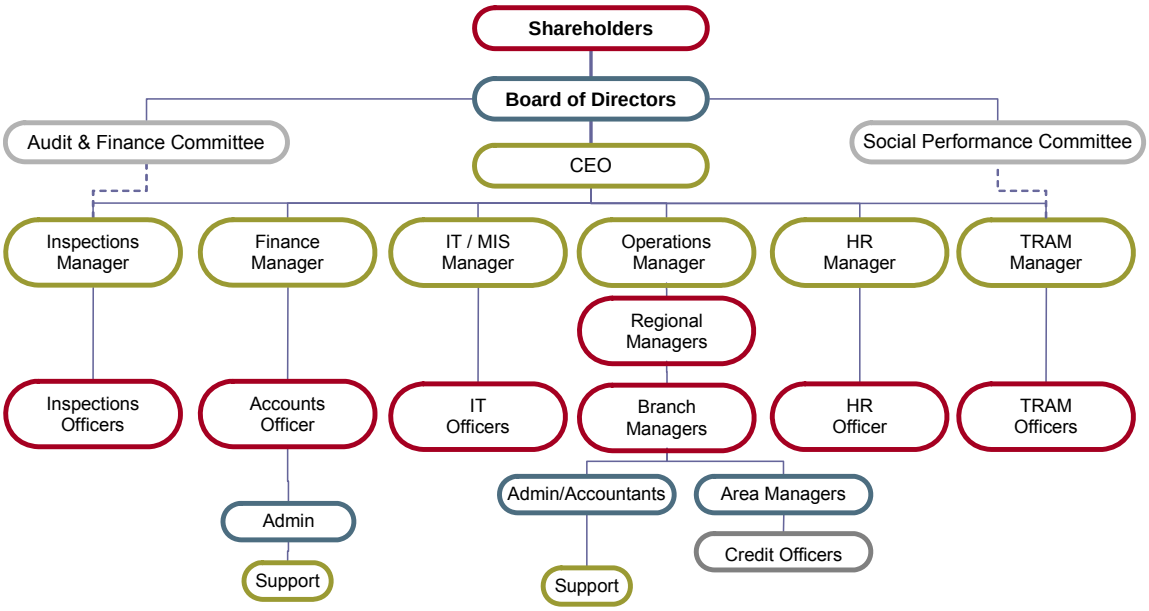
The current shareholders of AMK are Concern Worldwide and Concern Worldwide UK, which hold 99.9 and 0.1 percent of the share capital respectively. AMK's governing body is the Board of Directors. AMK's shareholders appoint the Directors; in turn, the Board of Directors appoints the Chief Executive Officer (CEO).

The Board of Directors is responsible for governing AMK and liaising with potential investors, as well as overall monitoring and guidance through the board meetings. The eleven-member Board is composed of an ex-senior partner with Price Waterhouse Coopers (PwC), a leading Cambodian lawyer, one member from Concern Worldwide Cambodia Program Management; four members from Senior Management of Concern Worldwide in Dublin, the Head of Community Development Finance at ANZ Banking Group, the CEO and Chairperson of DEPFA Bank (Ireland) plc, as well as the former and the new CEO of AMK Co. Ltd.

The Board of Directors has two advisory committees: the Audit and Finance Committee and the Social Performance Committee. The Audit and Finance Committee advises the Board on AMK's external audit performance as well as the internal audit function. The Social Performance Committee advises the Board on AMK's social performance in terms of poverty outreach, product suitability, client protection and transparency, and overall social responsibility. Both committees have external experts as members in addition to Directors. It is the combination of both committees that provides the Board of Directors and all stakeholders with information on the achievement of AMK's mission and the double bottom line of balancing social mission with financial self-sufficiency requirements.

The CEO heads the management team, which includes six departments and brings together professionals from microfinance and related backgrounds. A simplified structure of AMK is shown in Figure VI-1 below:

Figure VI-1: AMK Organizational Structure



Source: AMK Annual Report 2006

It is noteworthy that AMK includes an in-house and ongoing research function (undertaken by the Training, Research and Marketing (TRAM) department), which is separated from the regular operations in order to minimize staff biases and protect client confidentiality. The research function includes social and market research and systematically collects, stores, and analyzes information on clients. Market research aims at informing management decisions on new product design and on improving delivery procedures while the main aim of social research is to provide social performance information in terms of depth of poverty outreach and appropriateness of financial products. The starting point is a household survey that captures demographic information; household cash-flow patterns (sources of income and expenditure); consumption (as a proxy for income); variations in assets (physical, human and social capital); and other vulnerability factors including food security, coping strategies and indebtedness. To date, AMK's research database stores information about over 1,000 old and new clients as well as a control group of non-clients. Current outputs include client profiles, satisfaction and exiting

client reports as well as a wellbeing score that summarizes the poverty profile into a single poverty/wellbeing household index.

In 2005, AMK was selected as one of the seven MFIs around the world to participate in the *Imp-Act* Consortium Global Action-Research Learning Programme on Social Performance Management (SPM), a two-year project which seeks to gather evidence of effective SPM and understand its organizational value. The programme aims at examining the Social Performance experience of those MFIs pioneering on this topic and also include CRECER and PROMUJER in Bolivia; FONKOZE in Haiti; NWTF in The Philippines; PRIZMA in Bosnia-Herzegovina; and SEF in South Africa. Two workshops have taken place so far, a preliminary case study for AMK has been finalized (including a short summary) and a final one is foreseen for 2009.

Further information on the Social Performance of AMK and the balance between Social and Financial Performance can be found in AMK (2007b), Chetan (2007) and Torres et al. (2007).

Areas of Operation

AMK has expanded greatly in terms of geographical coverage from 2003 to 2007. Up to 2004, AMK only covered three provinces: Banteay Meanchey, Kampong Speu and Pursat. In 2005, AMK expanded to Battambang and Siem Reap covering a total of five provinces. In 2006 AMK expanded to Kampong Cham, Kampong Chhnang, Kampong Thom and Oddar Meanchey covering a total of nine provinces. My mid 2007, AMK had expanded to Kandal, Kratie, Preh Vihear, Preh Veng, Svay Rieng and Takeo and covered a total of fifteen provinces.

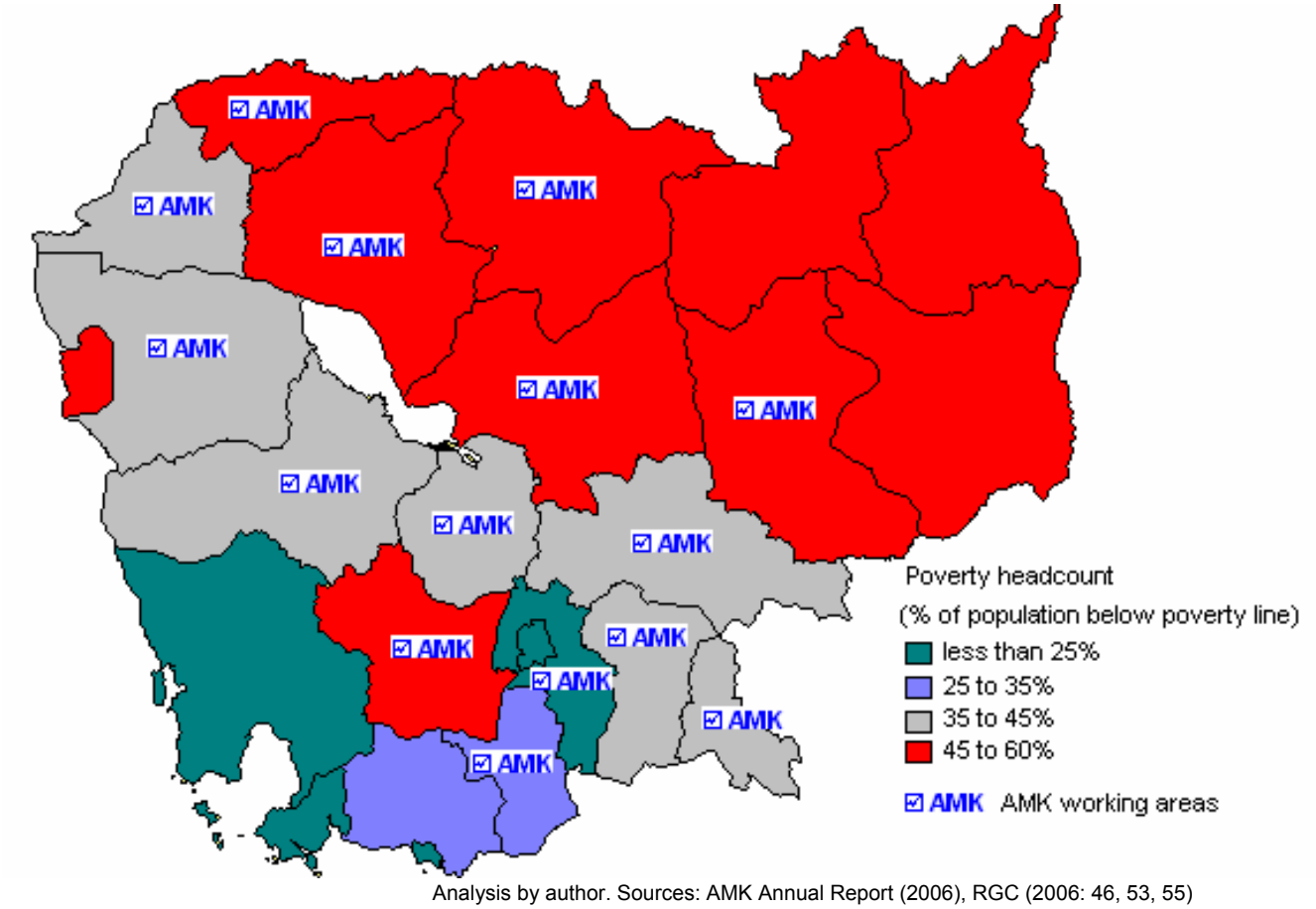
On 30 June 2007, AMK had nearly 90,000 clients in its fifteen provinces of operation in a total of 67 districts, 427 communes and 2,198 villages. Table VI-2 below shows AMK's geographical coverage among the fifteen provinces. Additionally, Figure VII-2 compares AMK's geographical coverage with the incidence of poverty at provincial level.

Table VI-2: AMK's Geographical Coverage

Province	District	Commune	Village
Banteay Meanchey	8	59	283
Battambang	6	34	193
Kampong Cham	7	38	198
Kampong Chhnang	5	31	140
Kampong Speu	7	53	388
Kampong Thom	5	31	167
Kandal	3	10	26
Kratie	1	10	34
Oddar Meanchey	4	17	91
Preh Vihear	4	18	51
Preh Veng	2	15	49
Pursat	5	44	221
Siem Reap	7	49	279
Svay Rieng	1	9	41
Takeo	2	9	37
Total Coverage	**67**	**427**	**2,198**

Source: AMK Annual Report 2006

Figure VI-2: AMK Geographical Coverage and Poverty Incidence by Province



Analysis by author. Sources: AMK Annual Report (2006), RGC (2006: 46, 53, 55)

In Figure VII-2 the poverty incidence is disaggregated by color: provinces in green have less than 25 percent of their population below the poverty line, provinces in blue have an incidence of poverty between 25 to 35 percent; provinces in grey have a poverty incidence of 35 to 45 percent and provinces in red have the highest poverty incidence (more than 45%). Thus, Figure VII-2 shows that AMK works preferentially in those areas with higher incidence of poverty than the national average of 35 percent.

Also, an analysis of the evolution of AMK's geographical coverage against poverty incidence by province corroborates that AMK indeed works in and expands to areas with higher incidence of poverty. This evolution of the AMK geographical coverage from 2004 to 2006 and the provincial distribution of poverty in Cambodia is available in Annex 22.

Methodology

Up to 2003, AMK operated solely through a solidarity group methodology and an end-of-term repayment product. End-of-term loans sustain high demand due to flexible repayment terms and remains AMK's main loan product, but they also carry the highest covariance risk[212] and have the slowest signal time in cases of delinquency. In order to reduce this risk and respond to other client types, AMK developed other credit products: for those households whose livelihoods depend on small scale manufacturing, service or trading activities, AMK is introducing fixed installment options for loan repayment. For those households with irregular cash-flows but good repayment history, AMK introduced a credit line option. AMK currently offers five different credit products and two types of savings products. Each of these will be described in detail in the following pages.

[212] i.e. the risk increases because the group is homogeneous (rural households) and they all invest in the same activity (farm production).

Credit Products

Currently, AMK offers five different credit products: three group-guaranteed loans without any physical collateral requirement, one emergency loan (without collateral, restricted to clients who have completed one year/cycle with AMK) and a small business loan delivered through an individual loan methodology that requires physical collateral and personal guarantees.[213] The group loans have three distinct repayment modalities: end-of-term, installments and credit-line, while the individual loan can only be repaid in installments.

AMK's most traditional product is the solidarity-group loan product, which offers flexible repayment terms where clients can borrow and repay at any point during the cycle. AMK's end-of-term repayment product is delivered to members through a solidarity-group lending methodology. The village solidarity groups are called Village Banks (VBs) and constitute the group loan delivery mechanism.[214] The potential clients self-select themselves into solidarity groups of 4 to 6 members and these, in turn, are organized into Village Banks of 4 to 12 groups (20 to 60 clients).[215] Each group nominates a group leader who is in charge of ensuring member attendance to meetings, troubleshooting and liaison with the Village Bank President, AMK's Credit Officer and other members.

A Village Bank President is the management representative of the Village Bank, is elected through secret ballot by all members of the Village Bank and is paid an incentive depending upon the Village Banks' performance.[216] Village Bank Presidents are responsible for helping Credit Officers in organizing collection and repayment meetings; informing Credit Officers in advance in cases of potential non-payment and following-up with delinquent clients; solving

[213] In addition to these 5 main loan products, there is a staff loan for full time staff. However, this product is part of the staff incentive package and will never exceed 2-3 percent of AMK's total loan portfolio. Thus, it will not be discussed in this section.
[214] Please note in the Cambodian context, "Village Bank" refers more to a "Village Association" or a "Village-level client group" than to the "Village Banks" as the delivery methodology developed by FINCA. The main difference is that AMK does not provide any revolving fund for establishing the VBs.
[215] Being part of a self-selected solidarity group entails that three to five other villagers trust the loan applicant to let him/her join their solidarity group. This has important implications for the risks and the costs incurred by the lender in providing financial services.
[216] VBPs receive a monthly incentive up to 3 percent of interest collection and 0.5 percent of principal collection only if collections are 100 percent. The VBP's qualifying criteria is: partially/fully literate; should not be a Village Chief/Deputy Village Chief or a direct relative; not involved in any money-lending activity; permanent resident; know AMK policies and procedures; and give at least one day per month to support AMK.

membership related problems; and ensuring that all clients have been enrolled according to group and Village Bank formation criteria.

In order to be part of a group, the potential client currently needs to fulfill four main conditions: (i) must be willing to be part of a solidarity group and offer moral guarantee for each other; (ii) should have at least one economic activity in the household; (iii) no two members in one group can be from the same family or household; (iv) cannot have existing (outstanding) loans from other microfinance institutions, programs, banks or moneylenders. All loans are guaranteed by the respective group members and appraised and approved by AMK's Credit Officer (CO) and the Village Bank President (VBP) before the disbursements take place in the presence of the group members and AMK's Area/Branch Managers.

Group loan: End of Term (or EoT-VB)

The End Of Term Loan for Village Bank members (EoT-VB) is delivered through VBs and granted for any purpose as long as the household has a lumpy cash-flow pattern from its livelihood activities that allows it to repay the loan. The maximum term is 12 months and the interest rate is of 3 percent per month on outstanding balances. Interest is paid monthly and the capital can be repaid at any time during the loan cycle, usually at the end. There is no penalty or fee for partial or full pre-payment of the loan principal.[217] The maximum loan amount of the first loan is R 200,000 (~USD 50), and one subsequent increment of R 100,000 (USD 25). From their third loan (or 2 years, whichever is later), they can apply for the maximum ceiling, which is equivalent to USD 125.[218] All loans are subject to a flat processing fee of 0.5 percent of the loan amount that is deducted from the loan. Payments start one month after the loan is disbursed and take place only during the monthly VB meeting. In case of late repayment, there is a penalty of 12 percent per annum (or 1 percent per month) on the principal balance.

[217] In case of pre-payment, the client is allowed to receive another loan within the original 12 months term but (1) the size of the new loan cannot exceed the size of the original loan, (2) the repayment date of the new loan will be no later than the original end-of-cycle date and, (3) the group is required to fill out a new group guarantee form for this new loan.

[218] The maximum amount of the first loan will increase to R300,000 (~USD 75) in late 2007.

Group loan: Installments (or Installments-VB)

The Installment loan for VB members (Installment-VB) shares exactly the same characteristics as the EoT-VB loan except the interest rate and the repayment modality: instead of paying interest monthly and the principal at the end of the term, I-VB loans require a monthly payment of fixed principal and declining interest amounts, with a monthly interest rate of 2.8 percent. The maximum loan size (at any cycle) is R 600,000 (USD 125). Additionally, the maximum loan term remains at 12 months but the term must be clearly decided with the client before sanctioning the loan. Therefore, the only distinction between this product and the EoT-VB loan is the client's household cash-flow pattern: households that have a regular cash inflow that is sufficient to meet repayment obligations are encouraged to borrow in installments. This product was introduced in 2004 and the interest rate was reduced to 2.8 percent per month in 2005.

Group loan: Credit Line (or Credit Line-VB)

Credit Line-VB is restricted to VB members who have finished their second loan cycle with AMK. As with other group loans, no physical collateral or guarantors are required. Clients can borrow and repay a number of times in any single cycle upto an approved borrowing ceiling. Clients must borrow any amount equal or less than their approved ceiling for the first time within the first 90 days from her or his individual approval date. After that, they have complete freedom of when and how much to borrow or to payback; the only condition is that the principal balance must be zero on the final payment day or before. The maximum ceiling of the loan is R 500,000 (USD 125) with term of at least 13 months but less than 24 months. The interest is 3 percent per month and the amount to be paid as interest will vary according to how much outstanding principal is left at a particular date. All loans are subject to a flat processing fee of 0.5 percent of the agreed loan ceiling, payable in the first disbursement. There are no fees or further requirements, except in the case of late repayment, where the penalty of 12 percent per annum (or 1 percent per month) will be charged on the principal balance. The VB-Credit Line was introduced in 2005 and is fast becoming the most popular product.

Individual loan: Installments (or Installment-I)

The individual loan targets the (underserved) lowest segment of rural entrepreneurs, who would want to borrow up to a maximum loan ceiling of USD 500.[219] The installment loan for Individual clients (Installment-I) is delivered to rural/semi-rural individual entrepreneurs (individual clients located in rural markets). The maximum term is 18 months and the interest rate is of 3 percent per month for the first two cycles (or two years) and 2.5 percent per month thereafter. Repayment will be in monthly installments with fixed principal and declining interest and there is no penalty for complete or partial pre-payment of the loan principal. The maximum loan amount of the first loan is equivalent to USD 375 and a maximum ceiling equivalent to USD 500. There are two up-front fees: a flat processing fee of 0.5 percent and a savings deposit of 2 percent of the loan amount. The compulsory loan-linked savings act as a security for loans losses but are fully refundable on loan completion with an annual interest of 12 percent on minimum monthly balances. In case of late repayment, there is an additional penalty of 1 percent per month on the principal overdue. In addition, Installment-I loans require physical collateral and two personal guarantors – from November 2007 only one guarantor will be required. Also, the process of identifying individual clients is significantly different from that of VB clients: a greater degree of scrutiny and control is undertaken to ensure that client identification is appropriate.

Emergency Loan

In addition, AMK also offers an emergency loan that is restricted for those clients that have completed one cycle with AMK, whether they are group or individual clients. The product is designed to help our clients to cover medical expenses in case of sudden illness or accident problems as well as to cover funeral expenses in case of death in the family of the client. The client can request the emergency loan to the Credit Officer in the village or the office staff at the branch and disbursement will take place within 4 working hours of receiving the request. The maximum loan amount is KHR 400,000 or THB 4,000 (USD 100) and the maximum term is 10 months. No physical collateral is required but clients must present one personal guarantor (who can be a family member). Clients will pay 2.5 percent monthly interest on the outstanding loan and the principal on or before the end-of term. There are no fees for this loan, except a 1 percent

[219] Most other MFIs/banks concentrate on higher value individual clients and lend higher amounts (around $500 and over, and reaching up to US10,000).

late repayment fee. Family members are eligible to apply for an emergency loan on behalf of the client.

Table VI-3 provides a summary of the main features of all AMK's products.

Table VI-3: Summary of Distinctive Features of AMK's Credit Products

	End Of Term - Village Bank	Installment - Village Bank	Credit Line - Village Bank	Installment - Individual	Emergency Loan
Clientele	Group members with seasonal (lumpy) cash-flow	Group members with regular cash-flow	Group members who have completed two cycles	Individual clients with regular cash-flow	Individual or group clients who have completed one cycle
Loan Guarantee	Social guarantee – No need for physical collateral or guarantors			Physical collateral and two personal guarantors	One personal guarantor
Loan Amounts	**Maximum first loan**: USD 50 **Maximum loan ceiling:** USD 125	**Maximum loan ceiling:** USD 125		**Maximum first loan:** USD 375 **Maximum loan ceiling:** USD 500	**Maximum loan:** USD 100
Denominations	KHR and THB (in Banteay Meanchey)				
Disbursement Deadline	1 to 2 weeks				4 working hours from time of request
Maximum Term	12 months		24 months	18 months	10 months
Repayment amount and frequency	3% monthly interest, end-of-term principal (or before)	Monthly fixed principal, declining 2.8% interest.	3% monthly interest on the outstanding loan; principal on or before the end of the term.	Monthly fixed principal, declining 3% interest. From the 3rd loan/ 2 years: 2.5% interest.	2.5% monthly interest on the outstanding loan; principal on or before the end of the term.
Prepayment penalties	None				
Late payment fee	Additional 1% per month				
Other fees	**Up-front fee:** 0.5% of loan amount.				None
Loan-linked compulsory savings	None			Upfront 2% of loan amount, refundable with annual simple interest of 12% on loan completion.	None

Source: AMK Annual Report 2006

Savings Products

Up to May 2003, TPT/Concern encouraged members to save small amounts at the village level. These savings were a compulsory precondition for providing loans but were not handled directly by the Concern-TPT programme. The Village Banks themselves were responsible for its performance and maintenance. Regular savings were required before providing a loan in order to screen out those members that were not diligent in their regular savings payment (i.e. savings was a test of their commitment and diligence). These savings were circulated as internal loans among the group members. AMK's role was restricted to supervising the record management; providing each Village Bank with a cash safe and stationary to record savings collections and on-lending; and paying the incentives of the Village Bank Savings Secretary (who was appointed specifically for savings management). The compulsory savings at the Village Bank level were suspended in May 2003 and stopped completely from August 2003. This decision was due to the limitations of compulsory savings. On one hand, the internal fund administered by the Village Banks was prone to nepotism if the patron-client relations prevalent in rural Cambodia were replicated in the figure of the Village Bank President or Savings Secretary. At the same time, AMK's Credit Officers lacked verifiable information about the real performance of the savings fund because Credit Officers did not control its management. On the other hand, it was very costly for AMK to facilitate savings (providing a safe, stationary, incentives to the Village Bank Savings Secretary, and significant Credit Officers' time for recording functions). Compulsory savings were refunded to the members once they completed their full loan cycles.

Currently, AMK offers two types of savings products: a loan-linked savings product for Installment-I loans and a general voluntary savings product.

Loan-Linked Savings Product

The loan-linked savings are compulsory for Individual-Installment loan clients and thus withdrawals are not permitted until the loan and interest is fully paid. However, on complete payment of outstanding loan and interest balances, the client has the option of withdrawing the savings with interest accrued (currently set at 12 percent per annum) or to shift the balance to higher interest earning voluntary savings.

General Voluntary Savings Product

The savings account allows complete freedom for deposit and withdrawal amounts and earns 1.5 percent interest per month (18 percent per annum) on minimum monthly balances. Interests are accrued every 6 months, in June and December.[220] Accounts can be opened with a deposit of KHR 500 (USD 0.125, which is also minimum savings balance to be maintained in the account), and the minimum denomination for transactions is KHR 100 or multiples of KHR 100. At the time of enrolment, each individual is provided with a savings passbook free of cost where all transactions must be recorded by the CO/Teller. Transactions for deposits and withdrawals take place at the village (on the day of the monthly VB meeting or individual meeting/visit) or at the branch office on all working days from 8 am to 12 pm.

Table VI-4 provides a summary of the main features of all AMK's savings products.

Table VI-4: Summary of Distinctive Features of AMK's Savings Products

	SAVINGS ACCOUNT
Minimum transactions	**Minimum denomination:** R100 and multiples **Minimum deposit to open account**: R500 (USD 0.125)
Transactions venue	Village (during monthly meetings or collection visits) and at the branch office (Monday to Friday, 8am-12 pm).
Savings account passbook	Records all deposit and withdrawal information and only the client can use it.
Savings account interest	18% annual interest on minimum monthly balances over R500. Interests accrued every 6 months: in June and December.
Fees	None, except R200 if clients (more than 6 months old) choose to request a withdrawal delivered to her village in non-monthly meeting day. There are no fees for minimum or maximum transactions, but for those exceeding USD 200, clients must call the branch office 24 hours (1 working day) in advance.
Dormant accounts	An account will become dormant (cease to earn further interest) after 12 consecutive months of no transactions and will be liquidated after 24 consecutive months without activity.

Source: AMK Annual Report 2006

Finally, the pre-loan training provided by AMK to potential clients is limited to the AMK's policies; origin and areas of operations; terms and conditions of microfinance products (such as repayment requirements, fees, penalties and disqualification for non-payment, loan sizes, analysis of cash-flow, and moral guarantees -or physical guarantees and loan-linked savings-); and the roles and responsibilities of the clients, group leaders and the Village Bank President.

[220] Interest rates, terms, and timing of interest accrual are due to change in late 2007.

AMK Financial and Operational Highlights

By end of 2006, AMK had a loan portfolio of USD 5.3 million serving 67,000 borrowers and a ration of Portfolio at Risk (PAR) of less than 0.1 percent.

Changes from 2003 to 2006 in the institutions have been quite dramatic: from covering 18,000 clients in 3 provinces to 67,000 clients in 9 provinces and from 68 to 188 staff members. By 2006, the Return on Assets (ROA) increased to over 8 percent and most importantly the Financial Self Sufficiency (FSS) rose to almost 100 percent. This is a remarkable achievement for a little over three full years of operations, particularly because this financial self-sufficiency has been achieved with a methodology that has not changed its focus on the very poor (AMK, 2007:7).

Table VI-5 briefly summarizes the main operational and financial performance and its evolution from its creation in December 2003 to December 2006.

Table VI-5: AMK Highlights

	Dec 03	Dec 04	Dec 05	Dec 06
Number of branches	3	3	5	9
Number of villages	497	610	912	1,586
Total staff	68	91	108	188
Number of active borrowers	18,422	20,464	36,221	67,006
Women Borrowers (%)	80	85	86	85
Number of voluntary savers	0	182	765	1,460
Loan portfolio (USD, K)	843	1,202	2,474	5,277
Group loans (%)	100	93	91	85
Individual loans (%)	0	7	9	15
Voluntary savings balance (USD, K)	0	1	5	8
PAR_{30days}	2.51%	0.71%	0.05%	0.09%
Avg loan disbursed (USD)	50	80	76	86
Avg outstanding loan per borrower (USD)	46	59	68	79
Number active loans below USD 300 (%)	100	100	99	99
Avg voluntary savings per saver (USD)	n/a	6	6	6
Loan outstanding/Avg.Loan Officer (USD,K)	32	32	50	74
Operational Self Sufficiency (OSS)	71.6%	93.0%	103.4%	121.5%
Return On Assets (ROA)	-10.7%	-2.0%	0.5%	8.3%

Source: AMK Annual Report 2006

This evolution of main ratios from 2003 to 2006 shows the profile of a successful microfinance institution, with increasingly positive ratios of profitability (RoA and OSS). The numbers of borrowers nearly quadrupled while maintaining the same percentage of women borrowers (about 85 percent) and very slow changes in the average loan outstanding per borrower and average loan disbursed (the average outstanding loan per borrower increased only from USD 46 to USD 79 well below market changes). More importantly, the percentage of loans below USD 300 remains very high at 99 percent. The staff has grown from 68 to 188 to match the demands of geographic expansion to other provinces (as well as new districts or communes within already operating provinces) but productivity of staff has also been increasing (with the amount of loan outstanding per average loan officer moving from USD 32,000 to nearly USD 74,000).

Also, because the number of clients in AMK has increased so dramatically and because there are more poor people in the areas where AMK work (see Figure VI-2 in page 198), the number of poor people reached over the years is likely to have increased considerably. However, this type of data does not allow assessing the evolution of AMK's depth of outreach; the data may provide indications on the potential depth of outreach but the depth of poverty outreach can only be properly assessed with the results of the empirical study, available in the Third Section of this dissertation.

AMK Research Summaries: Village and Rural Household Profiles

A review of the existing literature on the nature of demand for rural credit (see page 149 onwards), identified that the sources of income had been underrepresented in national level studies (concentrating on rice production and under-reporting income sources linked to livestock, fisheries/aquatic resources, forestry, wage labor, small business, rental of assets or remittances) and that there is a lack of research on a broad range of issues regarding Cambodian livelihood strategies, such as the high prevalence of crisis and their corresponding coping mechanisms. In order to fill in this gap, this section provides a succinct summary of the profile of villages where AMK operates and the client households it serves.

Generally, AMK clients are mostly located in remote rural areas which usually possess poor infrastructure facilities and utilities. Most of AMK clients are involved in rice production and farming (i.e. subsistence agriculture such as paddy, vegetable and fruit production). Other crucial sources of income and employment are livestock rearing, small-scale fishing, temporary labor, and small trading. Due to bad road conditions and distances from the villages to the districts and commune markets, clients often sell their products to both individual consumers within the villages and to middlemen, who transport the products to other markets.

Khlok et al. (2007) produced the latest AMK Client Household profile based on the sample of 300 cash-flow survey interviews. The report provides a summary of the main characteristics of the communities/villages where fieldwork took place as well as the profile of the average AMK's group client household. Each of these will be detailed in turn.

Based on the report, the main characteristics of the villages served by AMK are summarized in the following bullet points (Khlok et al., 2007:8-9):

- **Location and general demographics:** In 76 percent of the villages the roads were in good condition while bad and excellent roads were 12 percent each. The average number of households in a village is 217 (minimum 51 and maximum 934) and the average size is 4.8 persons per household. Both farm and non-farm activities are the main economic activities of the households. In more than 75 percent of villages (19 out of 25 villages surveyed) people migrate more than 3 months a year, either domestically or internationally.
- There are **microfinance providers** operating in 80 percent of all villages surveyed. In addition, 4 villages (16 percent) had more than 10 clients using the services of informal credit/finance activities such as money lenders or in-kind traders.
- **Basic infrastructure:** Villages seem poor in terms of healthcare or secondary school facilities. Markets in the villages are usually small and traditional (selling meat, fish and vegetables and open only in the morning or the evening). There are only 4

villages (16 percent) with a market or bazaar and most villagers buy fertilizers or pesticides from outside their villages (usually in the commune or district market). In 18 villages (72 percent) there are services available for livestock or agricultural activities. The details of the distance to infrastructure are available in Annex 23. Only 6 villages (24 percent) have access to electricity while other villages rely on kerosene or battery lamps. There is only 1 village with access to piped drinking water; other villages rely on rain water, well, pond or river water. It is interesting to note that all villages surveyed have access to network coverage for mobile phone. During the past 24 months, 11 villages (44 percent) benefited from food for work programs, 10 villages (40 percent) from relief assistance and 11 villages (44 percent) have self help groups of any kind.

- **Incidence of natural/non-natural disasters:** None of the villages surveyed lost crops due to natural disasters (flood, drought, etc.) every year but they commonly happened once in 2 to 10 years, with 52 percent incidence of floods and 48 percent incidence of droughts. However, most damage from most natural disasters has been assessed as manageable. Non-natural disasters also affected 9 out of 25 villages (36 percent) such as land grabbing or no further access to CPR, but in 89 percent of the cases this was assessed as manageable.

Based on the same report, the following paragraphs provide the main highlights of the household profile following the six main categories of analysis (Khlok et al., 2007: 2-3).

- **Demographics:** Most of AMK clients in the sample are married women. Their average age is 41 years, 62 percent are literate and only 10 percent could attend secondary school. The average household size is 5.4 members; a little over half of these are adults and 3.4 are income earners. Of the children living in AMK client households, about 51 percent are in school, 22 percent are not in school and 27 percent are not yet of school age. There is no gender difference in the children currently in school, but the drop-out rate for girls is higher than boys (27 percent vs. 18 percent), which is consistent with the Cambodia Inter-Censal Population Survey 2004. AMK clients and AMK heads of household are,

on average, under-educated with their average years of schooling lower than the figures found in the Cambodia Socio-Economic Survey (2004). Also, women had access to fewer years of formal education than men.

- **Cash inflow sources:** Rural households depend on a mixed array of diverse and complementary activities. Nearly every household is involved in farm and non-farm as well as other economic activities. Farming activities such as crops, livestock and CPR are one of the main cash earners for most households, particularly rice farming. Non-farm activities are often ranked as the first main cash inflow source, particularly casual labor, salaried employment, petty trade and food processing. Other economic activities include mainly loans and remittances. Salaried employment, although not as common as casual labor, is one of the most important cash earners for those households.
- **Cash outflow sources:** Food is one of the main expenses and often the first ranked expense, indicating the relative poverty of the households. Main outflows include expenses on basic needs (especially food and schooling), investments in farm and non-farm activities, ceremonies, loan payments, health-related expenses and expenditures on household materials and assets. Interestingly, investments on farm-activities are rarely the first main expense in the household, with non-farm activities more likely to be ranked first in the yearly household expenses. Households often mention expenses in loan payments, ceremonies, clothing, health, schooling, but comparatively they represent only a small share of the household yearly outflows.
- **Cash-flow patterns:** There are seasonality patterns of inflows and outflows in rural households. The months with higher cash inflows are December to March and the months with lowest cash inflows are August and September. Crops contribute to the high cash income pattern during the harvest season (December and January). Livestock sales increase in March and CPRs collection are mainly in February and March. Non-farm activities such as casual or salaried labor, manufacturing, services and petty trade present rather large and constant income flows for the whole year. Cash outflows in the household show similar patterns as cash inflows. Food is the most important outflow and accounts for the largest cash expense in the households. The main seasonal variation is linked to ceremonies such as wedding, traditional and religious rituals (especially from

December to May) and investments in crop production (from May to July). Non-farm investments and expenditures on health and schooling are important and happen throughout the year. Expenses on livestock inputs or CPRs and loan servicing are constant throughout the year and comparable in size with investments in crop production.

- **Assets:** About 94 percent of the households own cultivable land, with over half reporting only one plot. However, land is not evenly distributed among households, with 62 percent owning land less than 1.74 Ha, the average land area. A little over half of the households could produce enough rice to be self-sufficient. Regarding other assets, 58 percent own cows, 42 percent own pigs and 9 percent own buffaloes and all of the households own at least one asset of relatively modest value (worth less than USD 100). About half of AMK client households live in 'permanent houses' and most houses are in good condition and built on stilts, with a zinc/tin roof and either wood or thatch walls, but about 92 percent lack toilet facilities. Only 45 percent of the households could afford health care without having to borrow money or sell assets and only 14 percent expect all of their school-age children to complete secondary school. Generally, AMK clients have good relationship with others in their communities.
- **Vulnerability:** Compared to last year, half of the households thought their economic situation stayed the same, 34 percent thought it improved and 13 percent thought it worsened. When the household yearly income decreased, this was due mainly to sickness in the household (32 percent), poor agricultural season (27 percent) or natural disasters (29 percent). It is noted that household diets did not worsen proportionally with income decrease, with only 9 percent stating that their diets worsened compared with 13 percent whose economic situation worsened. In addition, 29 percent of the households surveyed went through a difficult situation in the last 12 months. The crises include family matters (19 percent), business trouble (10 percent) and external shocks (5 percent). To cope with these crises, the households applied different coping strategies: 14 percent of the households increased their economic activities; 13 percent spent past savings; 12 percent borrowed money or gold; and another 6 percent had to reduce consumption or sell assets. Nearly all of the households reported some or a lot of difficulty in paying large expenses, and only 5 percent could afford large expenses with no difficulty.

SUMMARY OF THE SECOND SECTION (NATIONAL, SECTORAL AND INSTITUTIONAL CONTEXT)

Poverty in Cambodia is widespread and there is little infrastructure in rural areas. The need to create economic opportunities in the rural sector in a country where more than 84 percent of the population is rural and where more than 90 percent of the poor live in rural areas, it is undeniable. However, it should be stressed that microfinance is not a panacea: access to financial services (and more concretely to credit) does not create economic opportunities but rather it helps people to take greater advantage of existing economic opportunities.

Despite significant progress on many fronts, Cambodia still faces formidable challenges. Cambodia's financial sector is at a rudimentary state. Rural households are still underserved by rural finance: an analysis of household coverage indicates that demand exceeds supply. In addition, there is regional disparity in access to microfinance services in rural areas, especially in the north and north-east of the country and the province of Koh Kong. Rural households currently have outstanding debts but there is little reliable information on the sources of credit, average debt sizes and the uses of credit (whether stated or real). Information on cash flows, livelihoods strategies and demand for other financial products besides credit is also limited or simply lacking. Within the formal financial sector, commercial banks do not serve rural populations, with the only very notable exception of ACLEDA Bank, which previously was a microfinance operator.

In addition to ACLEDA Bank, licensed and registered microfinance operators as well as the informal financial sector are the providers of financial services to poor rural households, albeit offering mainly rural credit. In fact, the Cambodian microfinance sector can be more accurately described as a microcredit sector: savings needs are also largely underserved, and except for a single health insurance project, microfinance providers do not provide other financial services (besides credit and savings).

The top-nine microfinance operators are ACLEDA Bank – Micro and Small Loan portfolio; PRASAC; AMRET; CEB; TPC; VISIONFUND; Hattha Kaksekar; AMK; and CREDIT.

Together these top-nine microfinance operators capture 93 percent of all outstanding loans and serve 94 percent of the clients. The analysis of the evolution of all microfinance providers reporting to the NBC, from 2000 to 2006 concludes that the Cambodian microfinance sector appears to be splitting into two groups: those MFIs maintaining a focus on small-balance loans and outreach, and other MFIs working with a mixed product offering of micro- and SME-loans. The first group is composed mainly by AMK, TPC and AMRET and, to a lesser extent, by VisionFund and PRASAC. The second group is composed by CEB, ACLEDA Bank, Hattha Kaksekar and CREDIT. In addition, the analysis further suggests that microentrepreneurs (and small enterprises) have benefited more than rural households from the increase in loans available to rural areas and that new entrants into the formal banking system also tend to focus more on microentrepreneurs and small enterprises. Finally, while licensed microfinance operators appear to be increasingly professionalized, further information is necessary on marginal licensed MFIs and other (registered or non-registered) microfinance operators to assess the likelihood of their long-term financial success.

Regarding specifically AMK, its evolution from a program of an international NGO (Concern Worldwide) into a Cambodian independent microfinance institution can be described as a success. The geographic expansion of operations along with the characteristics of AMK's products and services and their corresponding methodologies seem to serve the population its mission statement calls for. In addition, the current institutional structures set in place provide a balance between social and financial performance, with a pioneering parallel system of social and audit committees reporting to the Board of Directors as well as a market and social research function at the management level. AMK remains as one of the sub-group of microfinance operators that reach poorer populations and has maintained low average loan sizes compared to other top-nine operators (and the lowest during the last 3 year). In relative terms, AMK is the fastest growing microfinance operator in terms of outreach: moving from 5 percent of the market in 2000 to 11 percent in 2006. Currently it is the fourth microfinance institution in terms of borrowers and it is growing at the highest rate per year (34 percent on average).

SECTION 3 – EMPIRICAL STUDY: Measuring Poverty and Vulnerability among AMK Clients

The Third Section covers the Empirical Study of this dissertation and it is composed by chapters VII and VIII.

Chapter VII provides information on the methodology applied to the two poverty measures used in this study. The first section covers information on the sample size, representativeness and selection issues as well as the design of the survey tool. The second section first describes the methodology applied to the wellbeing score, which is based in Principal Component Analysis (PCA) followed by the methodology applied to the daily food expenditure measure per capita.

Chapter VIII goes on the summarize the results of analyzing the relative *measurement of the wellbeing score as well as the* absolute *measure of the daily per capita expenditure in food items. The chapter also details what each of the two types of measures show and what can be implied or ascertain from these findings. The last section compares the finding of both type of poverty measures and corroborates that both provide consistent information on the depth of outreach of AMK.*

Chapter VII - METHODOLOGY

Chapter VII studies the main methodological questions of the empirical study and is divided in three main areas: (a) the size of the sample, representativeness and selection issues (b) the survey tool, and (c) the different methodologies for analysis applied to the study.

The methodological approach involved a review of related literature in order to merge the best approaches and adapted them to the Cambodian context. Particularly, the questionnaire design has drawn from particular questions (and underlying hypotheses) found in the following four programs or projects and have been adapted to the specific context of rural Cambodia:

(1) The results from the USAID's Assessing the Impact of Microenterprise Services (AIMS) project, which aimed to improve the understanding of the impacts of microenterprise programs on microentrepreneurs, their households and enterprises and to strengthen the ability of USAID and its partners to measure the results of microenterprise programs.

(2) The multicountry research program of the International Food Policy Research Institute (IFPRI)/Consultative Group to Assist the Poor (CGAP) on measuring relative poverty. The project was financed by CGAP and the methodology for the tool developed by IFPRI. The objective was to design and test a simple, low-cost operational tool to measure the poverty level of MFI clients relative to non-clients.[221]

(3) The Imp-Act global action-research program, supported by the Ford Foundation and aimed at developing impact assessment systems based on the priorities of microfinance operators and their stakeholders; to broaden the scope of impact assessment to include wider poverty impacts; and to influence thinking and practice relating to the role of microfinance in poverty reduction.

(4) The USAID's Accelerated Microenterprise Advancement Project-Poverty Assessment Tools (AMAP-PAT) implemented by the IRIS Center at the University of Maryland. The

[221] The tool was tested in four case-countries microfinance institutions: SHARE in India, Kenya Women Finance Trust in Kenya, ACODEP in Nicaragua and Desjardins in Madagascar.

> IRIS-AMAP/ PAT project, aimed at designing at least two low-cost tools for poverty assessment in order to prove fulfillment of the new USAID mandate that "half of all USAID microenterprise funds benefit the very poor." The project defines the very poor as "those living on less than USD 1 a day, or those living in the bottom 50 percent below their country's poverty line."

In addition, some survey questions and techniques have been adapted from FINCA's methodologies (Hatch, 2007), particularly the FINCA Client Assessment Tool (FCAT) tool that was reviewed in Chapter III and that is detailed in Annex 4.

The methodology applied for defining AMK wellbeing score relies significantly on the IFPRI/CGAP initiative and it is based on the Principal Component Analysis (PCA) tool. More specifically, the empirical study follows the methodology proposed by Henry, Carla; Sharma, M.; Lapenu, C.; Zeller, M. (2003) Microfinance Poverty Assessment Tool. CGAP Technical Tool Series No.5. The handbook explains in detail the process for conducting a comparative poverty assessment between MFI clients and nonclients and it is often referred throughout the text as the IFPRI/CGAP manual.

As it was described in Chapter III, poverty refers not only to lack of adequate income but also to the limited capacity to take advantage of economic (livelihoods) opportunities and to the vulnerability of households to variations in their income or cash-flow patterns. Methodologically, this study addresses the multidimensionality of poverty by applying PCA as the statistical tool to define AMK's wellbeing/poverty score. Likewise, the household survey tool covers multiple dimensions: cash-flow patterns (including income and consumption patterns); average food consumption (as a proxy for income); variations in asset holding for both physical assets (whether productive or not) and intangible assets such as human capital (education and health) or social capital; and households vulnerability status (that is, how well placed they are to cope with internal and external shocks).

In addition, the study had to face the selection bias problem when choosing the control group. Selection bias refers to choosing respondents that are significantly different from the intended

general sample, producing a profile that is not representative of the general population. Selection bias can happen either because the researcher chooses a particular subgroup of the population or because the respondents put themselves into these groups (i.e. self-selection bias), usually because they aspire to belong to those groups even if they are not currently part of them. The first part of the problem has been minimized since the control group was defined as nonclients chosen randomly in the villages where clients were interviewed. On the other hand, the self-selection problem cannot be completely addressed. Applying new clients as the control group would reduce the self-selection biases since new clients share the same intrinsic characteristics of the client population. However, new clients are not an adequate comparison group for longitudinal impact studies and were discarded as the control group. Indeed, the relative and multidimensional poverty measurement detailed in this section has been created along side a general framework for a future longitudinal impact study. While the impact study will not be part of this dissertation, it is envisioned that the transformation effects on clients will be assessed by comparing the AMK-PCA wellbeing score of clients and nonclients (the control group) over time. It is precisely the definition of the AMK-PCA wellbeing score that will be detailed in this chapter.[222] Table VII-1 below offers a summary of the methodology applied to the study:

Table VII-1: Methodology

Methodology	Quantitative = Questionnaire.
Type of questionnaire	Mostly closed questions, but also occasional open ended questions.
Type of questions	Dichotomous (Yes/No, Men/Women, etc); categorical; multiple response options; etc.
Answers: Type of data	*Ordinal* (measurement scale that specifies ordered relationships of objects or events such as low/medium/high). *Nominal* (measurement scale that specifies categories but with no intrinsic order such as men/women or single/married/divorced/widow(er)). *Ratio data* (measurement scale in which responses correspond to absolute values, including the absolute value of zero).
Analysis Types	*Simplification* of the client profile information into a single **Wellbeing Score**. ***Daily Food Expenditure Per Capita*** (for rural households).
Analysis Tools	**Wellbeing Scoring:** Principal Component Analysis (PCA) and Tercile Analysis. ***Daily Food Expenditure Per Capita:*** *Benchmark with Cambodian Food Poverty Line.* ***Comparing the results*** *of both poverty measures.*

[222] A framework for a future longitudinal Impact Study has been created alongside these poverty measurements. The transformation effects on clients will be assessed comparing the AMK-PCA wellbeing score of clients and nonclients (the control group) over time.

The client household profile information referred in the analysis types above, has been already summarized in the final section of Chapter VI, where the main results were presented applying simple descriptive statistics.

Sample Size, Representativeness and Selection Issues

This study has covered a total of 450 households: 360 are client households and 90 are nonclient households (which become the control group). Fieldwork took place in the first part of the year 2006 and covered the five provinces of operation of AMK at that time: Banteay Meanchey (BMC), Battambang (BTB), Kampong Speu (KSP), Pursat (PST) and Siem Reap (SRP).

The sampling methodology used is a two-stage random selection process resulting in a self-weighting sample. In the first stage, 30 villages were randomly selected proportionate to the size of client population in all of AMK operational areas. In the second stage, in each of the 30 villages, 12 clients were randomly selected applying simple random sampling.[223]

The 30 villages were chosen from the list of all AMK's Village Banks with more than 14 active clients as of 31 December 2005. This is because, due the characteristics of AMK group loans, it is possible to have less than 14 clients who are active in a given date in a VB. The sampling requires an absolute minimum of 14 households for fieldwork (12 client households plus 2 replacements). However, using VBs with more than 14 clients does not affect the random selection proportionate to client population by province since the proportion of clients in each province remains exactly the same regardless of whether we count all clients, only group clients or only group clients in VBs with more than 14 active clients. Table VII-2 shows that the percentages between total clients and total group clients in Village Banks with more than 14 members remain constant.

[223] The two-stage sampling methodology is described in detail in Henry et al. (2003). The sample design benefited from the input and feedback of the members of AMK's Social Performance Committee (SPC) and particularly from the inputs of Dr. Manfred Zeller.

Table VII-2: Clients and Clients in Village Banks with more than 14 members

	Total Clients 31/Dec/05		Total Group Clients 31/Dec/05		Total Group Clients in VB > 14 members	
Banteay Meanchey (BMC)	11,192	31%	10,855	31%	10,746	31%
Battambang (BTB)	3,081	9%	3,047	9%	3,036	9%
Kampong Speu (KSP)	9,198	25%	8,662	25%	8,609	25%
Pursat (PST)	8,382	23%	7,964	23%	7,814	23%
Siem Reap (SRP)	4,367	12%	4,169	12%	4,127	12%
Total	36,220	100%	34,697	100%	34,332	100%

Table VII-3 below shows the results of the first stage (i.e. selecting 30 villages proportionate to the provincial distribution of AMK clients), with the distribution of the sample by province. First, AMK determined the *minimum* 27 villages proportional to provincial distribution of VBs by using only the integers and dropping the decimals in the distribution. Secondly, the remaining 3 villages were chosen randomly among the total list of clients in all provinces, selecting 3 random numbers from the cumulated list of all clients in all provinces and picking the 3 villages that contained each client. Random numbers were selected within the boundaries of the cumulated list of clients (i.e. the sum of clients over the list) in order to avoid biases towards clients from smaller VBs; otherwise smaller and larger VBs would have had the same probability of being selected. Therefore, in stage 1-a, 27 villages were selected proportional to the provincial distribution and in stage 1-b, 3 additional random villages were selected from the cumulated list of all clients in all provinces.

Table VII-3: Distribution of the sample (% in parenthesis): Selection of Villages

	Existing Group Clients (in VB > 14)	Village Sample [Stage 1]			
		Initial Proportional Sample	Villages Proportional to Province [Stage 1-a]	Additional Random Villages [Stage 1-b]	Total Villages
Banteay Meanchey (BMC)	10,746 (31%)	9.4	9	1	10
Battambang (BTB)	3,036 (9%)	2.7	2		2
Kampong Speu (KSP)	8,609 (25%)	7.5	7		7
Pursat (PST)	7,814 (23%)	6.8	6	1	7
Siem Reap (SRP)	4,127 (12%)	3.6	3	1	4
Total	34,332 (100%)		27	3	**30**

In the second stage, in each village 12 clients were chosen using simple standard sampling, i.e. equal probability of being selected. Table VII-4 below shows the summary of total sampled client households by province. Note that the sampling accomplishes its objective with similar percentages between the number of existing group clients in Village Banks with more than 14 members and the number of AMK client households interviewed. Annex 24 provides further details on the villages selected and the districts and provinces they belong to as well as the specific names of each of the individuals interviewed.

Table VII-4: Summary Sample Distribution (% in parenthesis)

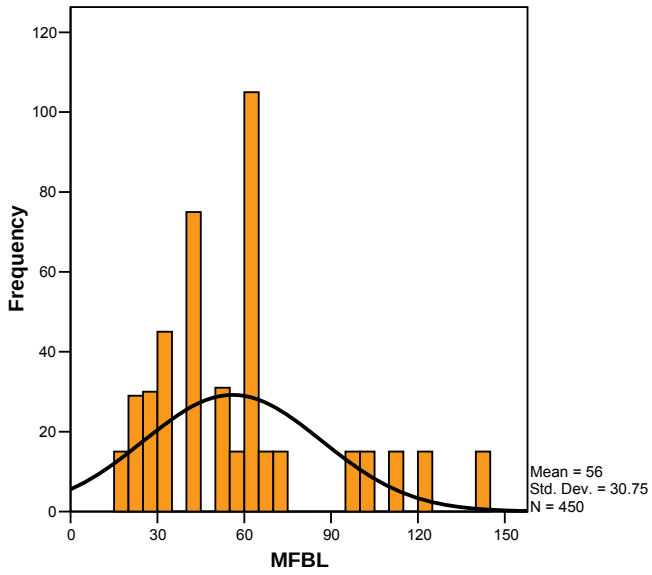
	Existing Group Clients (in VB > 14)	Household Sampling [Stage 2]			
		Number of Villages	AMK Clients [Stage 2]	NonClients [Stage 2]	Total [Stage 2]
Banteay Meanchey (BMC)	10,746 (31%)	10	120 (33%)	30	150 (33%)
Battambang (BTB)	3,036 (9%)	2	24 (7%)	6	30 (7%)
Kampong Speu (KSP)	8,609 (25%)	7	84 (23%)	21	105 (23%)
Pursat (PST)	7,814 (23%)	7	84 (23%)	21	105 (23%)
Siem Reap (SRP)	4,127 (12%)	4	48 (13%)	12	60 (13%)
Total	34,332 (100%)	30	360 (100%)	90	450 (100%)

The whole set of fieldwork took place between 26 March and 23 May 2006, with a break in April coinciding with the traditional Khmer New Year holiday. This time period is right after the rice harvest and before the planting season which starts again in June/July. These months were chosen because that is the time of the year in which rural households with (direct or indirect) farm-based livelihoods have more free time. Originally, there was also a high seasonal concentration of new loans in the first half of the year but this pattern is reducing over time, particularly with the introduction of Village Bank-Credit Line loans discussed in Chapter VI, which are becoming increasingly popular among existing clients. The fieldwork was undertaken entirely by Pech Sithon and Pum Sophy, then officers working for AMK's Training, Research and Marketing (TRAM) Department and under the direct supervision of the author.

In rural Cambodia, distances cannot be adequately assessed in Km because of the state of the road and it is commonly assessed in travel time. Thus, travel time becomes a proxy for the

remoteness of the villages covered. On average, it took 56 minutes to travel from the branch office to the villages with small variations among provinces: villages were more remote in Siem Reap province (with an average of 106 minutes) and more easily approached in Battambang (with 43 minutes of travel time). Average travel time was 52 minutes in Banteay Meanchey, 47 minutes in Kampong Speu and 46 minutes in Pursat. The distribution of time traveled to reach the villages is shown in the histogram in Figure VII-1 below, indicating that the sampled villages are usually remote and difficult to reach.

Figure VII-1: Histogram of Minutes from Branch to Location (MFBL)



Once in the village, information on who of the pre-selected client sample is present at the village at the time of the interview was facilitated by AMK's Village Bank President (VBP); this also identified the number of clients that had to be chosen from the replacement list. The first interviewee was introduced by the VBP but subsequent households were introduced by the previous interviewee. Note that while the VBPs helped identify nonclients' dwellings, the selection was random and performed by the fieldwork team. Finally, the interviewees were informed how the research department is different from the regular operations department and assured the interviewees that their information would be treated with complete confidentiality.

Clients who were pre-selected in the sample list but quit between 31 December 2005 and the actual time of the survey were only interviewed if they stated their desire to borrow again within the next 6 months (i.e. if they were classified as "dormant" clients as opposed to "deserting" clients). All other clients that exited AMK between 31 December and the time of the fieldwork were dropped from the list and the team choose another client from the replacement list.[224]

All replacement client households were also selected from a specific list. While it is common to prepare 2 replacements for each 12 clients, in this empirical study 13 randomly selected replacements have been included for each 12 randomly selected client households. By establishing a longer list of potential replacements, random selection of clients can be assured. The average replacement rate was 33 percent. This high replacement rate is mainly due to the nature of rural villages in Cambodia: often many households are absent at one particular time or season of the year; clients are busy in the fields, migrate temporarily or are attending a local celebration (wedding, funeral, etc) or share transport to attend the nearby market. Annex 25 studies in detail the incidence of replacements by village, province and enumerator in order to confirm the patterns outlined above.

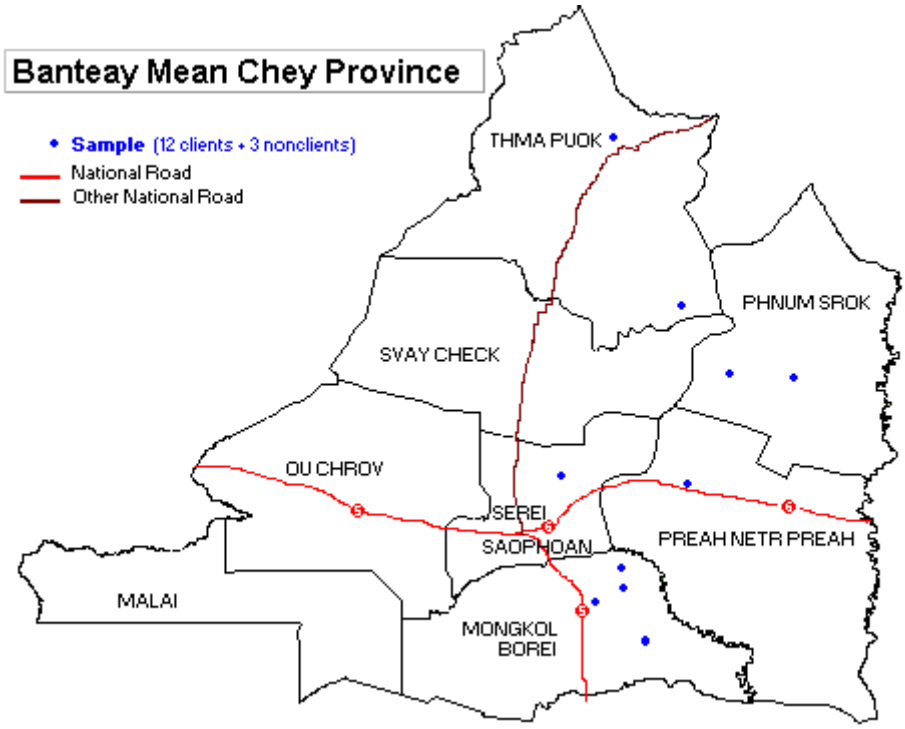
In each village, the same proportion of client-nonclient households was interviewed: 3 nonclient households for every 12 client households. The nonclient households are not currently AMK clients and thus they may borrow from other MFIs or informal lenders. Nonclient households were selected randomly within the village. The specific procedure for the random walk was the following: in each village one member of the team selected one nonclient households and the other team member selected two nonclient households. The VBP provided the information of the location of nonclient dwellings but households were randomly selected making sure they were not close together. Often, nonclients were interviewed after each team member finished with their allotted 6 client households, although sometimes nonclient households were interviewed while waiting on the allotted client to become available. This is believed appropriate as villages in rural Cambodia have no spatial clustering of wealth.

[224] The implementation of this rule remains difficult to verify. From the 360 client households, 72 reported having their loan fully repaid at the time of the interview. While it is likely that most of these 72 clients were indeed dormant this fact will not be confirmed for sure until the follow-up interview scheduled for 2008. As a useful benchmark, note that based on AMK 2006 Exit Survey, 18 percent of exit clients can be classified as dormant, which is consistent with the figures provided above.

The sample distribution in each of the provinces is shown in detail in Graphs VII-2 to VII-6 below, with the districts not yet covered by AMK operations highlighted in grey.

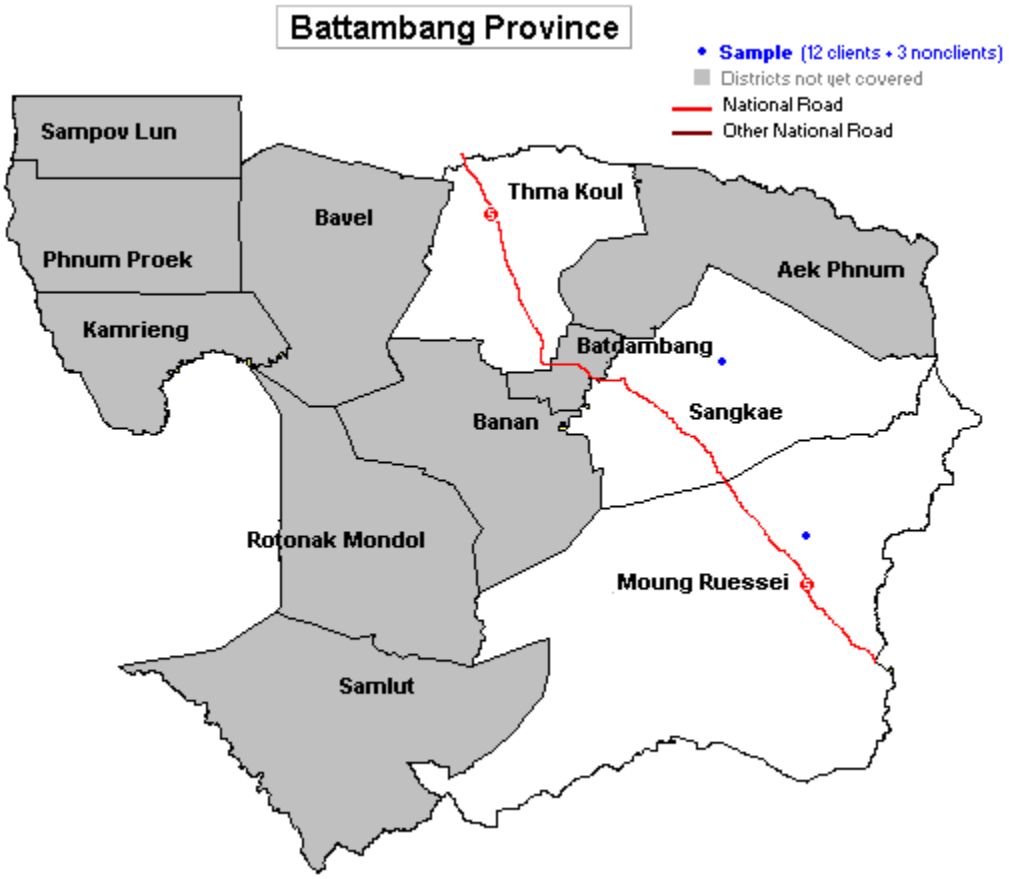
- As shown in Figure VII-2, in Banteay Meanchey province fieldwork took place in most districts except Malai, O'Chrov and Svay Chek. Concretely, 4 villages in Mongkol Borei; 2 in Phnum Srok; 1 in Preah Netr Preah; 1 in Serei Saophoan and 2 in Thma Puok. Note that AMK works in all districts in Banteay Meanchey.

Figure VII-2: Sample in Banteay Meanchey



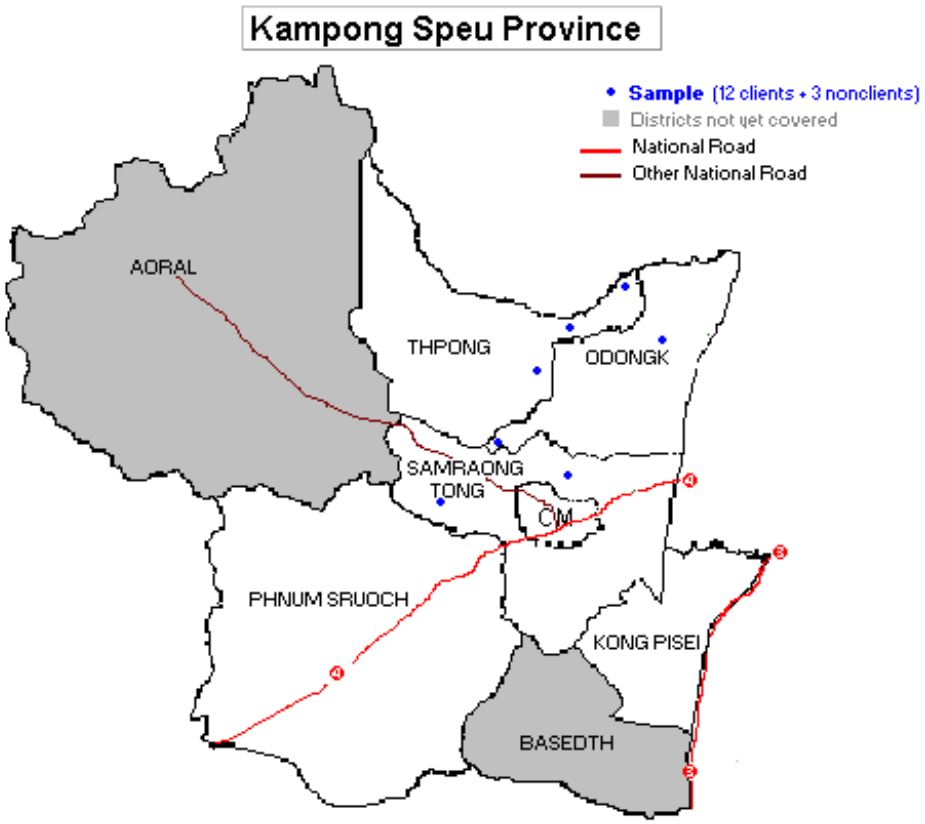
- As shown in Figure VII-3, in Battambang province fieldwork took place in Moung Ruessei and Sangkae districts with 1 village in each. At the time of the fieldwork, AMK only operated in one additional district within the province: Thma Koul.

Figure VII-3: Sample in Battambang



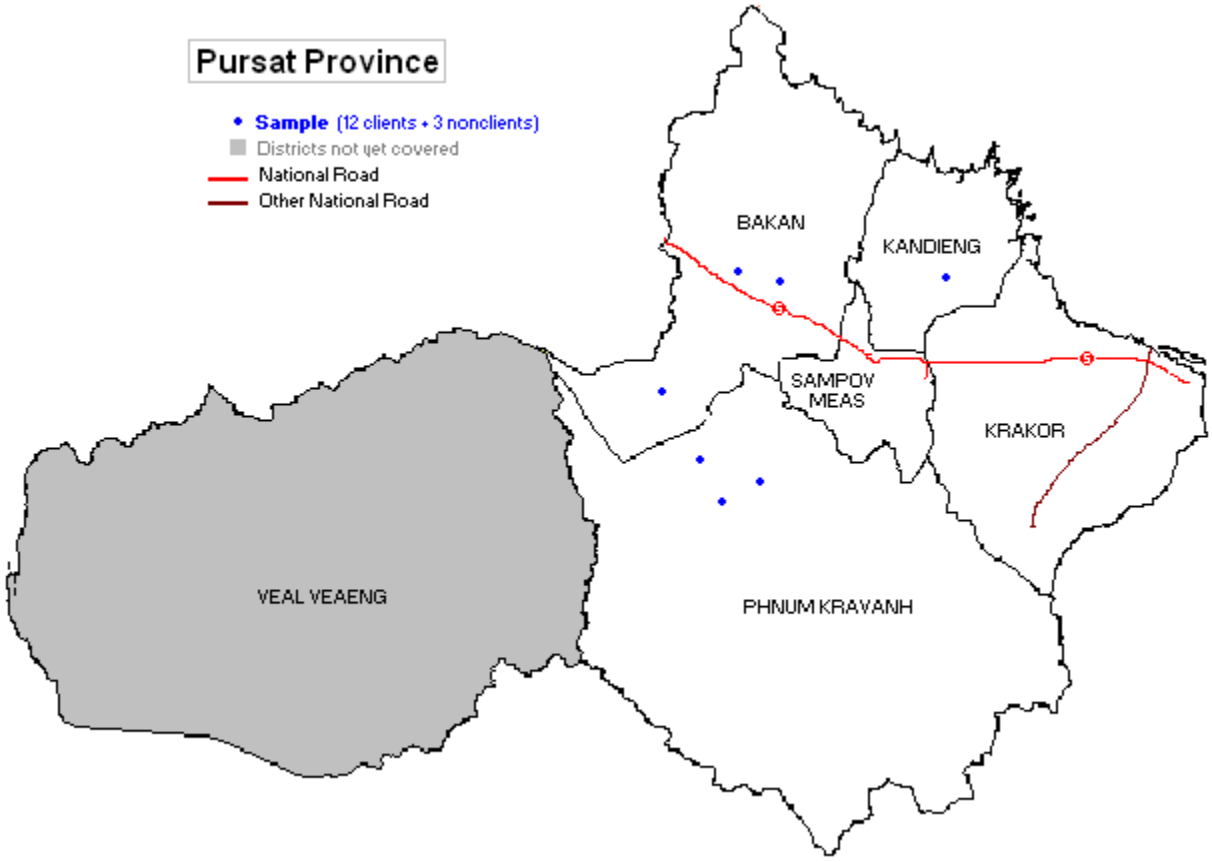
- As shown in Figure VII- 4, in Kampong Speu province fieldwork took place in Odongk and Samraong Tong districts (2 villages in each) and in 3 villages in Thpong district. AMK was also operational in Phnum Srouch, Kong Pisei and Chbar Mon but Aoral and Basedth were not operating areas.

Figure VII-4: Sample in Kampong Speu



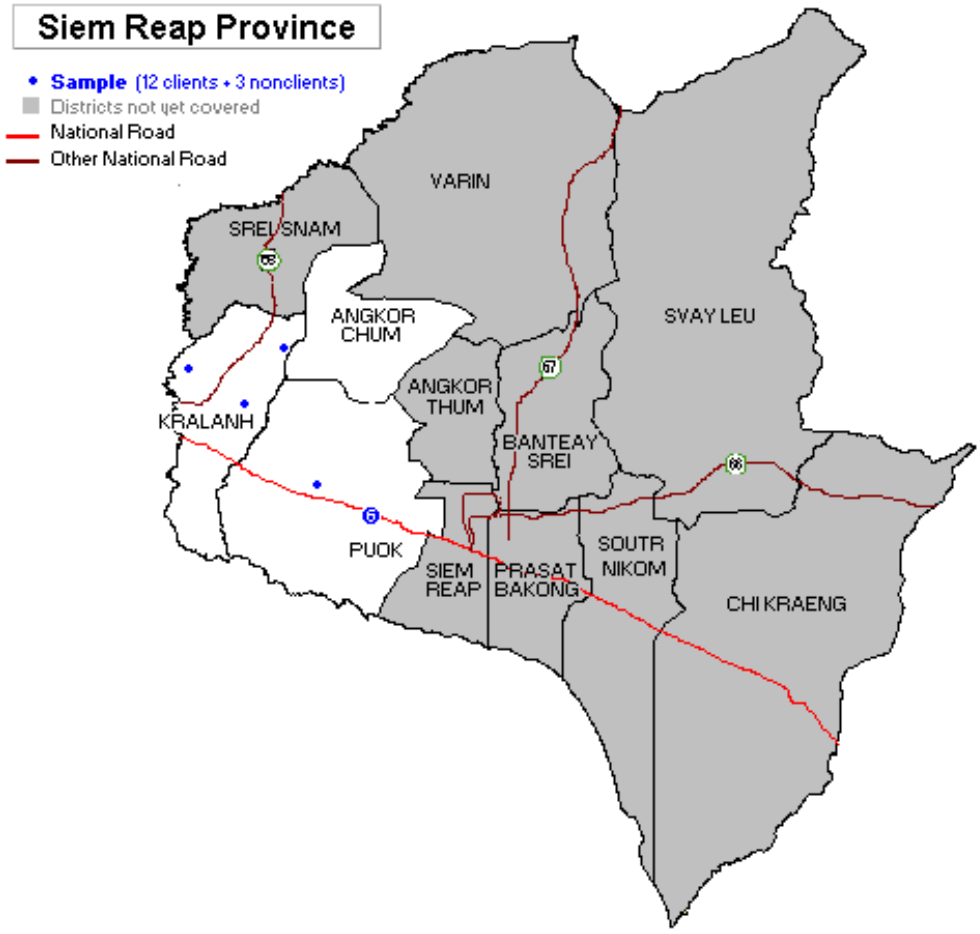
- As shown in Figure VII- 5, in Pursat province fieldwork took place in Bakan and Phnum Kravanh districts (3 villages in each) and in 1 village in Kandieng district. In addition, at the time of the fieldwork AMK was active in Krakor and Sampov Meas. However, AMK does not operate in Veal Veng district and the southern part of the Phnum Kravanh district is forest area with little or no population.

Figure VII-5: Sample in Pursat



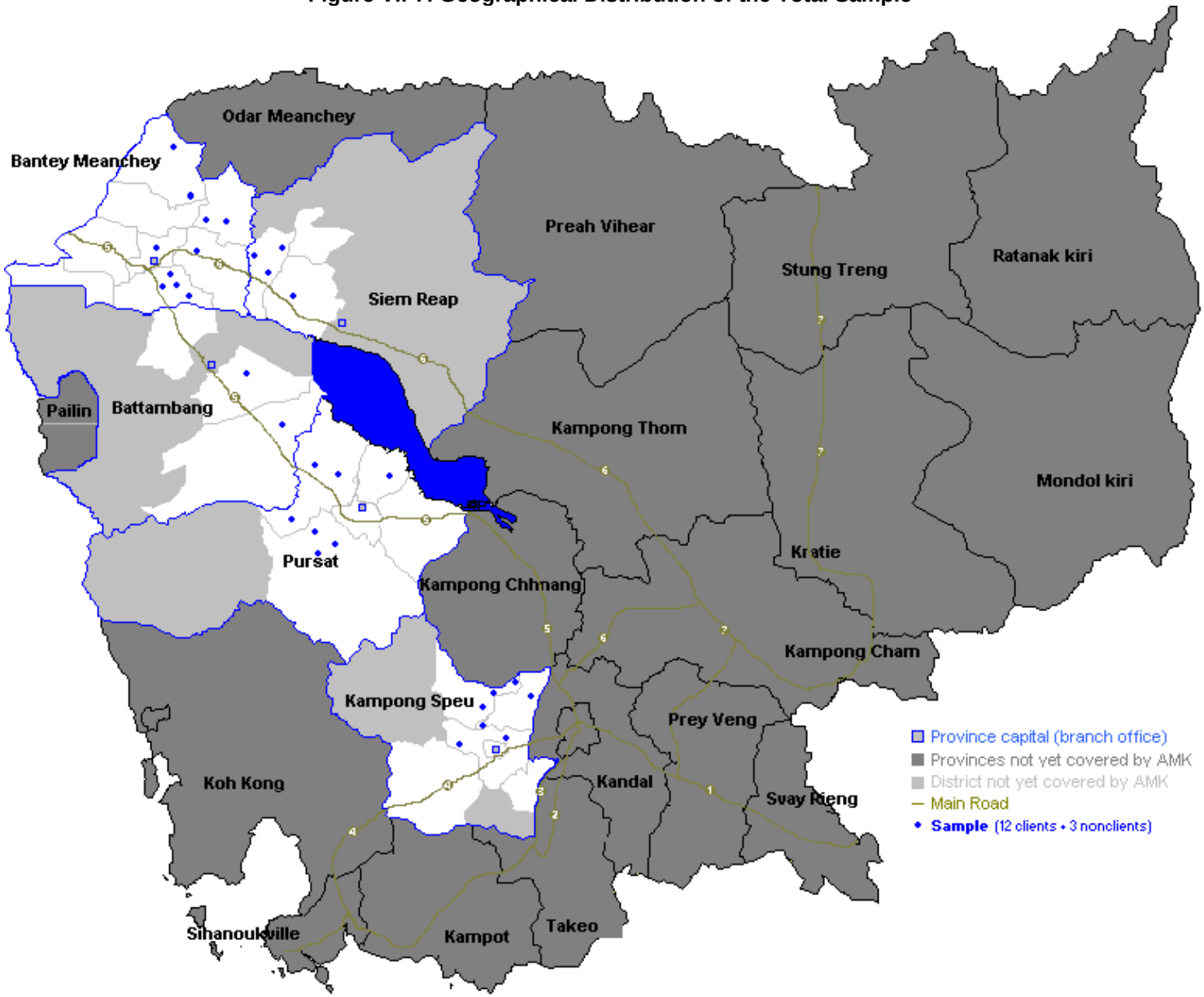
- Finally Figure VII- 6 shows that in Siem Reap province, fieldwork took place in 3 villages in Kralanh district and in one village in Puok. In addition, at the time of the fieldwork, AMK was also active in Angkor Chum district.

Figure VII-6: Sample in Siem Reap



On the following page, Figure VII-7 shows the map of Cambodia providing the overall distribution of the sample throughout the country and mimicking the areas of operations within the province at the time of the fieldwork.

Figure VII-7: Geographical Distribution of the Total Sample



Design of the Survey Tool

The survey tool, also referred as the household cash-flow survey, can be found in Annex 26, including all codes and definitions applied (which are also specified at the end of the tool).[225] The household's cash-flow survey covers the following main areas:

(a) General demographics and household information, such as the family size, income earners, age or number of children. This corresponds to Section A in the questionnaire.

(b) Sources of income and expenses in the last year; seasonality of household inflows and outflows in the last 12 months (or cash-flow patterns); and an estimation of the household's food expenditures. Household inflows are covered in Section B; household outflows are covered in Section C; and the estimation of the households' food expenditure is covered in Section D.

(c) Asset holding levels: physical assets (including productive assets) and intangible assets such as human capital (education and health) and social capital (social relations). Physical assets are covered in Section E of the survey tool while intangible assets and social capital are covered in Question G.10 to G.12.

(d) Other vulnerability information, such as variations in economic situation, food security, indebtedness, difficulty in coping with external or internal shocks as well as coping strategies. Vulnerability information is generally found in Section G, except of loan and indebtedness information which is covered in Section F of the survey tool.

Some key detailed explanations specific to the application of this tool and to the Cambodian context are provided below.

[225] Codes apply for the following questions: A.4.2 and A.7 (Gender); A.6 (Position in the household); A.9 (civil status); A.12 (Highest class passed); B.5.1 (type of manufacturing activity); B.6.1 (type of service activity) and B.8.1 (other inflows including, rental or provas and sale and pawned items).

- The number of members in a particular household is defined as the "Group of individuals who live together under the same roof and regularly share meals and expenses together (household members share the same food at least once a day)." Family members away from home are not included unless they are:
  - Migrant spouse or migrant children that contributes regularly/ substantially to the household expenses *or*
  - Children of head of household attending boarding school when the household fully supports them financially.

  Also in Section A, the expenditures in clothes and shoes for all members of the household during the last 12 months (Question A.14) include also second hand clothes and are probed by each member with time reference points: Khmer New Year, school, plowing /harvest or other celebrations. The figure does not include gifts, or clothes passed by one member to another. If sewn at home, it provides the value of all materials used: thread, fabrics, buttons, and needles.

  While the head of household and the AMK client are explicitly identified by questions (Question A. 6 and Question A.14 respectively), the first person in the demographics grid of Section A corresponds to the person interviewed within the household structure.

- Secondly, the Khmer term "provas" (Question B.8.1) means "sharing" – whether "sharecropping or "sharelivestocking" and is considered a type of rental. There are two main differences between traditional Khmer provas and common rental:
  - in provas the "rental" is post-paid (i.e. rice is given after harvest or the owner of the cow will get the first calf while the family caring after the cow will get the second calf) while other rental arrangements are usually pre-paid and
  - in case of a natural calamity, no full payment is expected (at least not in cash) while in the other common rental arrangements, the full amount will be paid regardless of natural calamities or other external forces.

Also, pawning assets (Question B.8.1) is considered as a "type of sale" (basically, selling at a worse price but it is also cheaper to buy back), simply because most pawning cases encountered never quite claimed the asset back.

- In Section E, household assets are defined as equipment and durable goods, i.e. goods that last for a long time (some of them could be passed to their children): cultivable land, livestock, house, gold/jewelry, TV or radio, motorcycle, etc.

- Regarding education and the highest education level achieved by individuals (Questions G.10 and A.12), in the Cambodian context, primary school refers to grades 1 to 6 and it is used as a proxy from 6 to 12 years old; lower secondary refers to grades 7 to 9 and it is used as a proxy from 13 to 15 years old and upper secondary refers to grades 10 to 12 and it is used as a proxy from 16 to 18 years old.

- Finally, food security refers specifically to Question G.2 but it is also triangulated with Questions G.3, G.4, and G.5. Note that meals refer to meal eaten and not cooked; e.g. a household might eat 3 times a day but cook only twice a day.

This questionnaire has been revised in two occasions. The first revision incorporated the learning from the results of the original test in 2004 with a sample of 114 households and the second revision entailed modified questions and pre-coded answers for the 522 sample of 2005. The survey tool also includes thorough inputs from the members of AMK's Social Performance Committee at the end of 2005. Concretely, as a result of the Committee feedback a grid of household demographic information was added in Section A; a modified version of the IRIS-AMAP/ PAT expenditure composite survey combined with the original FINCA-tested questions for estimating the food expenditure per household was incorporated in Section D; and Section F added a pre-coded list of risks (and the corresponding coping mechanisms) previously tested by CDRI surveys.

The questionnaire took on average about 40 minutes to complete (42 minutes for clients and 33 for nonclients).[226] The format of the questionnaire per se has remained very similar to the original formats of 2004 and 2005 and it is somewhat different from the commonly used survey formats since it responds to what was convenient to the research team. For instance, all the coding has been included at the end of the tool instead of throughout the document because the team had already memorized the codes of all the answers.

Questions that could potentially be perceived as discriminatory were purposely excluded, such as religious groups, the ethnic group[227] or asking directly who the head of the household is; information about the household head is obtained when probing in the household composition in Section A without labeling it as such. Additionally, it is fairly easy to identify the female headed households through a simple query.

The survey tool included some self-assessment questions. Self-assessments are often considered unreliable for use in comparison studies due to the subjective nature of the responses. Specific self-assessment questions in the survey tool included: the expectations of how many children will graduate from school, the strategies used to pay for healthcare, and how many friends within the community would help them in case of an emergency. These self-assessed questions are variations of previous questions developed by FINCA in their research efforts for measuring poverty (Hatch, 2002) and were included to test if they could also be valid for the Cambodian context. In addition, the reviewers of poverty assessment tools under the IRIS-AMAP/ PAT project concurred that some of the FINCA's approaches were "interesting" and recommended further field testing for some aspects (Zeller, 2004: 29). The specific reasons for the inclusion of each question in the survey tool are detailed below:

[226] On average, the original 2004 questionnaire took 72 minutes and the one in 2005 also took 40 minutes on average. These time savings were due to the simplification of the questionnaire but most importantly to the Cambodian research team being solely responsible for the fieldwork, which dramatically reduced the translation time.

[227] Note that Cambodia is relatively ethnically homogenous. Khmer ethnicity makes up some 96% of the population and the remaining 4% is divided among 2.2% Cham (or Khmer Islam); 0.2% Chinese; 0.4% Vietnamese and 0.1% highland tribal groups (Khmer Loeu, Chunchiet or highlanders encompassing a total of 17 different ethnic groups); finally other groups include Thai, Lao, and other. Most of these small ethnic groups are geographically concentrated in specific areas of the country: Chinese, Vietnamese and Thai mostly in Phnom Penh; Cham in Kompong Cham and neighboring provinces; and highlanders in Ratana Kiri, Mondol Kiri, Kratie and Stung Treng (World Bank 2006: 43). In the rural areas where the fieldwork took place nearly all would be classified as ethnically Khmer.

(i) The perceived level of difficulty in affording large expenses has been included in the questionnaire (Question G.9) because vulnerability to shocks has been consistently recorded in country reports and analysis as a crucial catalyst of poverty and vulnerability to poverty in rural Cambodia, particularly medical emergencies and health expenses.[228]

(ii) The tool included child-specific indicators even when not all households have children in order to test if the expectation of a household about how many of their children would complete secondary school (Question G.10) could be a good indicator of human capital. Also, note that due to the history of Cambodia, general low levels of adult education further complicated measuring education as a human asset.

(iii) Health-related information is often rejected because responses are deemed highly subjective and misleading, without specialized training of the interviewers by health specialists. The tool collected information on the frequency of selling assets or borrowing money in order to afford healthcare expenses. This question allowed assessing the incidence of health crisis in households without requiring specific health related training.

(iv) Finally, indicators for social capital are often rejected due to the difficulty of measuring and identifying comparable indicators. Notwithstanding, the tool used as an indicator of social capital the number of good friends or neighbors that the household has in the village or community were they live. This type of question seemed propitiatory due the particular characteristics of rural households in remote Cambodia.

The following paragraphs briefly review some other questions commonly found in surveys but that have been adapted for or excluded from the AMK survey tool and explain the reasons behind the specific adaptation or its exclusion.

[228] For instance see Ballard, ed. (2007), WB (2006a, 2006b) or FitzGerald and So (2007) referenced extensively in the Cambodian Poverty Profile explored in Chapter IV.

Firstly, own production that is consumed within the household, is commonly assessed by asking the value food that the household produces on its farm or garden, or gathers from the forest and then consumed. In the case of AMK, the questionnaire divided this question into two separate entries: first it asks for the value of rice consumed[229] and secondly it asks for the value of other food items that the household has produced in the farm or garden. A third specific question covers the value of food consumed that has been gathered, collected or fished from the forest or river/pond/lake has been added since the use of Common Property Resources (CPR)[230] is very relevant within the Cambodian rural context. Also, the recall period in this type of questions are usually one week, but this becomes irrelevant in rural Cambodia (particularly for rice, which is the staple of Cambodian diet); therefore, the recall period applied to the survey tool for food produced and consumed within the households is 12 months.

Secondly, the monetization of expenditures in non-food items have been excluded in the questionnaire in order to reduce the duration of the survey tool and because most nonfood items were not relevant for comparisons with national benchmarks or among different provinces.[231] For instance, the cash-flow survey does not ask the amount spent on other nonfood goods such as wood or charcoal for fire/cooking or utilities (such as electricity, phone, water and sanitation) or fuel (such as kerosene, paraffin, wood or gas for cooking). In fact, over 93 percent of households use firewood/charcoal for cooking and 53 percent of household use kerosene for lighting (RGC-MoP, 2006: 71). In rural Cambodia, common lighting sources also include batteries (car batteries) and there are nearly no toilet facilities to speak of. Households in rural Cambodia do not display much in terms of furniture or appliances, except for the traditional bed/table furniture and common household appliances and kitchen items. However, construction materials (pillars, wood logs, cement-bases for pillars) are bought throughout the year in small amounts and become a form of savings until households have accumulated all elements required

[229] The amount of rice consumed by the households (Question E.2) was double checked at the time of the physical review of the questionnaires applying the following simple rule: amount consumed had to be over the estimation of minimum self-sufficiency requirement for rice which have been estimated at 10 tang (240 Kg) per adult per year and 5 tang (120 Kg) per child per year (Conway, 1999: 137). Please note that 1 tang = 2 tao = 24 Kg; 1 tao = 12 Kg.
[230] CPR refers to plants and animals collected from the field and forest, including fish and wood. Other CPR include: bamboo, palm leaf, fruits, roots, wild vegetables, frogs, land crabs, birds, snakes, rats or rabbits, etc.
[231] In addition, note that there is no LSMS in Cambodia and the Cambodia Socio-Economic Survey (CSEC), which is the LSMS equivalent in the Cambodian context, uses a "diaries" methodology while AMK survey uses a "recall" methodology, which would further complicate the potential task of comparing results from both sources of data.

for setting them up or assemble them. While the survey tool does not asks for the specific amount spent, it does ask for an enumeration of all the main outflows in the household and identify the main 3 expenditures in the year (without attempting to monetize these items and without attempting to classify them as consumption or, productive / economic activity expenditure or both. At the same time, the questionnaire does not analyze in detail the enterprise expenses because most livelihoods are based on subsistence and small family enterprises are rarely able to adequately separate enterprise budgets from household budgets. The outflow section (Section C in the questionnaire) is not directly comparable with national surveys, but has been included in the survey tool because it is very useful information for client profiling and product design. For instance, if paying back a loan is one of the main outflows in a household, this is crucial information for AMK and this data could not have been collected if the questionnaire only concentrated on consumption expenditures.

Finally, regarding land ownership, people in Cambodia use simultaneously and indistinctively different measures of size (Squared meters, Are, Hectares and Rai)[232] and different measures of value (Riel, Dollars, Chi and Damloeng)[233] The value of cultivable land is provided by the interview and probed, if necessary, by asking "If you were to sell that land today, how much money would you receive for it?" or "If you want to buy land like yours today, how much money would it cost you?" Regarding the values of land, it is not possible to have a reasonably accurate reference for land values as the land situation in Cambodia is very unorganized at the moment. Since it is not possible to verify to reject market prices provided by the respondents, the cash-flow survey trusts the information provided without any further data triangulation.

In addition to the household survey, a community survey was completed for all villages where fieldwork took place. This information was provided by the Credit Officer and/or Area Manager in charge of the particular village. The objective is to provide a general overview of the communities/villages where fieldwork took place and covered four main areas:

[232] The equivalent measures are: 1 Ha = 10,000 m2 = 100 Ares = 6.25 Rai

[233] The equivalent measures are: 1 Chi = 3.75 gr. gold; 1 Damloeng = 10 Chi. The conversions used in this dissertation are the following: For gold prices, the prices at the end of last quarter of 2005 were used (1 Chi = USD 57 and thus, 1 Damloeng = USD 570). For USD conversion, I used the average of exchange rate form March to May 2006 (the time of the fieldwork), which has been used throughout the dissertation. The rate applied is 1 USD = R 4,906 (March 2006: 1USD = 4,095; April 2006: 1USD = 4,092; May 2006: 1USD = 4,102).

- Main demographics of the community (such as number of households; average household size; main economic activity; incidence of temporary migration, etc.);
- Main credit providers (MFIs/MFOs/NGOs, informal sources);
- Main infrastructure (hospitals; schools; and access to electricity, water or mobile network coverage);
- Main incidence of natural or non-natural disasters (flood, drought, land grabbing, lack of access to Common Property Resources (CPR)[234])

This community survey is a modification of the tool applied by IRIS-AMAP/PAT project in Uganda but due to time constraints it was filled in once all other household cash-flow surveys where finished (May 2006) instead of coinciding with the village visit schedule from May to May. Interviews took place in person, by phone or through AMK's internal video/VoIP system. The Community Survey can be found in Annex 27. The most interesting highlights have been highlighted in Chapter VI – AMK Client and Village Profile.[235]

Benchmarking with National Level Data

The analysis of the cash-flow survey tool provides a profile of the average AMK client household. This profile was already summarized in the last section Chapter VI and does coincide in the basic features of all recent reports on rural livelihoods and poverty profiles.[236]

[234] CPR definition discussed in footnote 230**.**
[235] Note that the highlights discussed in Chapter VI correspond to latest sampling available at the time of writing this dissertation (2007) instead of the sample applied for this dissertation, which took place in 2006. Findings are expected to be very similar, as the findings from the Client Profile 2007 were indeed very similar to ones of the Client Profile produced in 2005.
[236] See for example Ballard, ed. (2007); FitzGerald and So (2007); WB (2006a, 2006b); and RGC-MoP (2006 – which have been referenced extensively in the Cambodian Poverty Profile discussed in Chapter IV.

In addition, Table VII-5 below shows the comparison between the basic infrastructure available in AMK villages where sampling took place and those villages covered by the Cambodian Socio-Economic Census (CSES 2003/04) as reported in the Cambodian Poverty Profile (RGS-MoP, 2006). Further, the national-level general data on villages is segmented by the level by consumption of the household, reporting the specific figures corresponding to the poorest and richest quintile. Table VII-5 shows that the characteristics of the AMK sampled villages regarding location and access to basic infrastructure are very similar to the villages covered in the RGD-MoP Poverty Profile, further confirming the representativeness of the sample. However, sampled villages generally seem closer to the figures of the poorest consumption quintile than those of the richest quintile (except for access to primary and lower secondary schools). This difference is likely due to the poorer infrastructure generally available in rural settings.

Table VII-5: Comparison of Basic Infrastructure in Villages

	AMK Villages Sampled in 2006 (n=30)	CSES03/04 Sample RGC- Village Characteristics Poverty Profile		
	(average distance in Km or % of total villages)	Total	Poorest Quintile	Richest Quintile
Location				
Distance from Branch to Location [Distance to Province headquarters]	32 Km	36 Km	42 Km	25 Km
Road Condition (Good) [Access to all weather roads]	77%	78%	71%	88%
Access to Basic Infrastructure				
Villages with referral hospital	3%	3%	2%	4%
Villages with primary school	83%	53%	49%	49%
Villages with lower secondary school	17%	12%	8%	16%
Villages with upper secondary school	3%	5%	3%	6%
Villages with shop for pesticides, etc	10%	16%	11%	22%
Villages with access to electricity	13%	30%	14%	58%
Villages with access to piped water	0%	11%	2%	34%
Distance to Basic Infrastructures (when not available in village)				
Distance to nearest referral hospital	16 Km	13 Km	16 Km	9 Km
Distance to nearest primary school	2 Km	2 Km	2 Km	1 Km
Distance to nearest lower secondary school	8 Km	12 Km	8 Km	16 Km
Distance to nearest upper secondary school	15 Km	12 Km	17 Km	7 Km
Distance to nearest shop for pesticide…	9 Km	8 Km	11 Km	5 Km

Community Surveys 2006 and RGC-MoP (2006: 72-75).

The basic demographics and household information of the sample also seem consistent with the national benchmarks regarding characteristics of households in rural Cambodia, as well as with the general population of AMK clients. The following bullet points provide a brief overview:

- Women constitute 88 percent of the AMK clients in the sample. This is consistent with the gender disaggregation of AMK clients at the end of December 2005 which was 85 percent women clients and 15 percent clients who are men.
- Clients in the sample are on average 41 years old.
- Only about 60 percent of the interviewees and 50 percent of AMK clients could read and write a letter, which is below the average adult literacy rate for rural women of the Cambodia Inter-Censal Population Survey 2004 (CIPS-2004) of 62 percent but in tune with the 54 percent rate from the 1998 census. The mean of number of years of schooling was 2.46. Note also that the percentage of literate adults reported in the CSEC 03/04 is also consistent with AMK at 44 percent (RGC-MoP, 2006:77).
- The average household size is 5.3 persons per household, slightly above the national rural household size of 5.0 according to the CIPS of 2004 and the figure of 5.1 from the 1998 census but below the figure reported by the CSEC 03/04 of 5.8 (RGC-MoP, 2006:76). The household size for client households is 5.4 and for nonclient households 4.7.
- In each household there is an average of 2.7 adults and 2.6 children.

The complete figures for literacy rates and household size are displayed in Table VII-6 below

Table VII-6: Comparison of Literacy and Average Household Size

	Census 1998	CIPS 2004	CSES 03/04
Literacy Rates			
Adult Literacy Rate	67%	74%	44%
Women Adult Literacy Rate	57%	64%	
Adult Literacy Rate Rural Areas	65%	72%	
Women Adult Literacy Rate Rural Areas	54%	62%	
Average Household Size			
Household Size (Total)	5.2	5.1	5.8
Household Size (Rural Areas)	5.1	5.0	

Sources: Census 1999, CIPS 2004 and RGC-MoP (2006, pp. 76-77)

Note that the results of the CIPS 2004 may not be as accurate as the ones from the Census 1998: while the Census 1998 covered over 2 million households in more than 13,000 villages the CIPS 2004 barely covered 21,000 households in 700 villages.

Finally, Table VII-7 compares some very basic indicators from the AMK household sample and households interviewed for the CSES 2003/04 regarding dwelling and ownership of consumer durables. As was the case with the comparison for villages these figures further confirm the representativeness of the sample with similar dwelling characteristics and ownership of assets, albeit the figures of AMK clients tend to be closer to those found in the poorest consumption quintile.

Table VII-7: Comparison of Basic Dwelling and Ownership Indicators in Households

	AMK Client Households [n=360]) (average m2 or % of total clients)	CSES03/04 Total Sample RGC- Household Characteristics Poverty Profile		
		Total	Poorest Quintile	Richest Quintile
Dwelling				
Living area (m2)	46 m2	44 m2	33 m2	63 m2
Thatch Roof	38%	20%	37%	5%
Tiled Roof	11%	29%	20%	31%
Walls of wood, logs or plywood	45%	46%	33%	53%
No Toilet Facility	95%	73%	94%	35%
Ownership Selected Consumer Durables				
Television	48%	50%	26%	79%
Mobile phone	6%	14%	1%	48%
Motorcycle	24%	32%	10%	62%

AMK Client Profiles 2006 and RGC-MoP (2006: 70-72).

Methodology

This section first explores the methodology applied to the AMK Wellbeing Score to later explore the methodology applied to the per capita Food Expenditure measure. The AMK Wellbeing Score is a multidimensional and relative measure of poverty, while the Food Expenditure measure is a one-dimensional and absolute measure of poverty.

Methodology applied to AMK Wellbeing Score: Principal Component Analysis (PCA)

Principal Component Analysis (PCA) is a statistical technique used to identify a relatively small number of components that represent relationships among a set of many interrelated variables. PCA provided the vehicle to address the multidimensionality of poverty for the purposes of this dissertation. If poverty is multidimensional, operationalizing these dimensions entails that a set of multiple indicators have to be combined into a single index that summarizes the information in a logical way. The method of PCA is used precisely to isolate and measure the poverty component embedded in various poverty indicators in order to create a household-specific poverty score or index.

In simple terms, PCA is an indicator–based method that simplifies the multidimensionality of poverty to a single composite score. PCA slices information contained in the *set* of indicators into several components and uses the co-movement amongst the indicators (which are likely to be related to each other) to isolate and quantify the underlying common components. Thus, each component is constructed as a unique index based on the values of all the indicators. The main idea is to formulate a new variable, X^*, which is the linear combination of the original indicators such that it accounts for the maximum of the total variance in the original indicators. That is, X^* is computed as:

$$X^* = w_1 X_1 + w_2 X_2 + w_3 X_3, \ldots$$

where the weight (the ws) are specified such that X* accounts for the maximum variances in X1, X2 and X3…..(Henry et al., 2003, Basilevsky 1994; Sharma 1996).

The objective of AMK's Principal Component Analysis (AMK-PCA) is to address the multidimensionality of poverty by measuring the welfare of households as well as their vulnerability to poverty. PCA was selected as the methodology to create a score because it selects those indicators that capture common characteristics of poverty rather than to describe the causes of poverty and computes a series of weights that mark each indicator's relative contribution to the overall poverty component. Using these weights, a household-specific "poverty score" can be computed based on each household's indicator values. The end result is a single index that assigns to each sample household a specific score representing that household's wellbeing status in relation to all other households in the sample. The underlying hypothesis is that while it is not possible to create a universal poverty score system, it is possible to create one for households in rural Cambodia.

Annex 28 provides an overview of PCA theory, the mathematical summary and the detailed procedure. However, the main properties of the index can be summarized as follows:

(a) Each component is constructed as a unique index based on the values of all the indicators and this index is standardized (i.e. it has a zero mean and a standard deviation equal to one);
(b) The first principal component accounts for the largest proportion of the total variability in the set of indicators used; the second component accounts for the next largest amount of variability not accounted by the first component, and so on for the higher order components; and
(c) Each component is unrelated to the other components; that is, each represents a unique underlying attribute.

The construction of the AMK-PCA score has relied on the work produced by Henry et al. (2003) for the IFPRI/CGAP poverty score and has followed the same statistical methodology and filters in order to ensure that the resulting index does not represent a distorted measure of poverty.

However, there are three fundamental differences between AMK-PCA score and the score developed by IFPRI/CGAP-PCA:

1) the survey tool and indicators are different and have been adapted to the reality of rural Cambodia, as was discussed in detail in Chapter VII;
2) the score has been relabeled a "wellbeing score" as opposed to a "poverty score" as a conscious effort on concentrating on what clients have as opposed on what they lack;[237]
3) the AMK-PCA benchmark is food security instead of the per capita expenditure in clothing and footwear benchmark applied in the IFPRI/CGAP-PCA.

Regarding the last point, the IFPRI/CGAP study used as benchmark expenditure in clothing and footwear because it can reflect the relative poverty or wealth of a household in many cultures. The empirical section of this dissertation actually tested both benchmarks: clothing and footwear and food security and decided that the score produced with food security portrays a more complete picture of how poverty and vulnerability affect rural households in Cambodia. Specifically, the indicators that define the score resulting using food security as a benchmark cover some key dimensions of poverty (such as education and health) that were not covered in the score built with clothing and footwear as a benchmark. The statistical comparison of both scores will be explored at the end of this section. In addition, household eating patterns offers clues on chronic hunger and are strong indicators of poverty *and* vulnerability: a household will only reduce the quantity or the quality of the food they eat when there is no other coping strategy available; in other words "going hungry for all or part of the day" is a decision of last resort. According to Henry et al. (2003:56) eating patterns can be affected by the poverty of a household in three main ways:

- First, poorer households tend to consume food on a less regular basis and eat smaller quantities than wealthier households; depending on the context, some households skip meals or eat smaller quantities during particular seasons of the year or on a more regular basis;

[237] Concentrating on what clients have, as opposed to on what they lack, has been inspired by the work of Caroline Moser on Asset Management, which was discussed on Chapter III – Measuring Vulnerability to Poverty.

- Second, poorer households tend to consume more of less costly foods and less of more costly foods;
- Third, poorer households are often less able to purchase staple foods in larger quantities at better prices or less able to maintain a stock of these staples.

In defining the household index, AMK-PCA wellbeing score followed four stages:

- First, identifying the strongest individual indicators that distinguish relative levels of poverty/wellbeing for the surveyed households of nonclients (i.e. the control group).
- Secondly, pooling together the explanatory power of the selected indicators into a single score using PCA, testing the absolute value of coefficients, sign of component coefficients and eigenvalues of the components.
- Thirdly, testing the model applying the relative size of communalities and Kaiser-Meyer-Olkin test and fourthly, run the model for the total sample, i.e. both clients and nonclients.

The following pages detail each of these stages and the corresponding criteria and cutoff values, as defined by the IFPRI/CGAP model.

Step 1: ***Selecting a screened set of indicators that are significantly correlated with the poverty and vulnerability benchmark indicator using linear correlation coefficients***

In this first step, the objective is to identify the strongest individual indicators that distinguish relative levels of poverty for the surveyed households of nonclients.

AMK-PCA chose those indicators that already show a strong correlation with the poverty benchmark indicator of "food security" applying the statistical procedure of the linear correlation coefficient, which measures the degree to which two variables are associated. In addition to the ordinal and ratio scale indicator variables recommended by the IFPRI/CGAP manual, this dissertation used dummy variables (i.e. variables with possible answers yes or no) as part of the

PCA model. In fact, yes and no answers could also be interpreted as ratio measures of 0 or 1 or as an ordinal measure scale that assigns a higher order to 1 than to 0.[238]

Following this statistical procedure, a coefficient value at or near 1 suggests a strong positive relationship between the two variables while a value at or near –1 indicates that the variables are inversely related. Those indicators registering insignificant levels of association (based on probability theory $p > 0.05$, *meaning less than a minimum 95 percent confidence interval*) were excluded from the list while the indicators with the highest level of significance (i.e. based on probability theory, very strong levels of association are set at $p< 0.01$) were chosen and ranked according to their level of significance. The full correlation matrices and the summary of the 166 indicators with the highest levels of association can be found in Annex 29.

Of these 166 indicators, 47 were chosen for step 1 of the process and are ranked in Table VII-8 below on the basis of their correlation to the poverty benchmark indicator: food security. Annex 30 provides the detailed reasons for exclusion of the remaining 119 variables. The set of indicators ranges from 40 to 50 variables, instead of the 20 variables originally suggested by the IFPRI/CGAP manual[239] and may be grouped in three main categories (Assets, Expenditures and Vulnerability / Food Security), which will become the building blocks of the score:

[238] The inclusion of dummy variables was a suggestion to the author by Dr. Zeller (one of the authors of the manual) in the Social Performance Meeting of December 2005.
[239] Increasing the number of variables from 20 to upto 40-50 was suggested to the author by Dr. Manfred Zeller (one of the authors of the manual and member of AMK Social Performance Committee) in the December 05 SPC Meeting.

Table VII-8: Ranked 47 Indicators by Level of Association with "*Food Security*" Benchmark

Indicator	Level of Significance	Correlation Coefficient	Number of cases
G.2. [Food security]	.	1	450
G.3 [HH Diet]	0	.712(**)	449
CopingReduceSold	0	-.525(**)	450
G.1. [HH Economic Situation]	0	.451(**)	450
G.9. [HH Large Expenses – Ordinal]	0	.428(**)	450
G.11. [HH Health Expenses – Ordinal]	0	-.422(**)	449
CopingBorrowing	0	-.378(**)	450
E.3.3. [Walls]	0	.377(**)	448
D.7.1. [Savings]	0	.331(**)	450
AssetOrdinal	0	.311(**)	450
G.12. [HH Social Capital – Ordinal]	0	.293(**)	449
E.6.1. [Moto]	0	.288(**)	450
NonFarmServicesCash0or1	0	.272(**)	450
E.3.2. [Roof]	0	.254(**)	449
C.7.2. [Outflow reinvest NonFarm]	0	.250(**)	450
ClothingPC	0	.246(**)	447
TotalHHFoodExpenseYearly	0	.241(**)	449
C.12.2.[Outflow buy gold]	0	.240(**)	450
NonLoansGivenCash0or1	0	.236(**)	450
E.4.3. [TV]	0	.232(**)	450
CashInflowFromPettyTradeB610B612	0	.228(**)	450
E.5.6. [Mobile]	0	.222(**)	450
E.7. [Toilet]	0	.219(**)	448
E.3.1.[Floor]	0	.216(**)	449
HHTotalValueLandinRiel	0	.212(**)	450
AccRankFood	0	-.207(**)	450
NUMADULTS	0	.202(**)	450
C.11.2.[Buy other HH materials Durable Assets]	0	.190(**)	450
D.6. [Buy clothes KNY]	0	.186(**)	448
AccRankSalariedLabor	0	.185(**)	450
AcdRankServiceLoans	0	-.180(**)	450
FarmCash0or1	0	.178(**)	450
C.10.2. [Buy land]	0	.178(**)	450
HHTotalLandAreainHa	0	.171(**)	450
AccRankCasualLabor	0	-.168(**)	450
HHhClothing	0.001	.154(**)	448
AccRankAssetBuilding	0.001	.153(**)	450
4.a. [MFBL]	0.001	-.152(**)	450
AccRankLoansReceived	0.001	-.149(**)	450
D.2.3. [Market value rice consumed]	0.002	.148(**)	449
HHhHighEduc	0.002	.144(**)	448
A.4.1. [Number Income Earners]	0.003	.142(**)	450
HHhLiteracy	0.003	.138(**)	449
AccRankRemittances	0.004	-.137(**)	450
D.2.2. [Rice sold by HH]	0.004	.134(**)	450
D.2.1. [Rice Yield]	0.007	.128(**)	450
B.8.1.2.3. [Assets pawned for cash]	0.007	-.127(**)	450

**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

Step 2: ***Choosing the best explanatory variables to test a model and interpret the results***

The objective of stage 2 is to pool together the explanatory power of the selected indicators into a single score using PCA, by using as testing marks the absolute value of coefficients, sign of component coefficients and eigenvalues of the components.

In AMK-PCA, the first component is the combination that accounts for the largest amount of variance in the sample. The second component accounts for the next-largest amount of variance and is uncorrelated with the first. Successive components explain progressively smaller portions of total sample variance. Because all components are uncorrelated with one another, only one can be considered to measure relative poverty. Therefore, the most critical output for determining the composition of the poverty index is the component matrix. The final AMK-PCA score has been constructed with 22 indicators; whereby closely related variables were screened in order to add to the PCA model only the strongest.

The details of this interactive process and all the previous AMK-PCA models tested in order to arrive to the best AMK-PCA model can be found in Annex 31. Annex 31 covers test 1 to test 5 of this interactive process: test 1 started with 47 variables of which 13 were excluded; test 2 started with 34 variables of which 10 were excluded; test 3 started with 24 variables of which one was excluded; test 4 started with 23 variables of which one was excluded. Annex 31 provides the details for each of these five tests, spelling out the reasons for the exclusion of specific indicators in each of them.

The CGAP/IFPRI-PCA methodology recommended that the number of variables in the index should be at least 10 indicators but less than 20. However, the *AMK-PCA wellbeing score has been constructed with 22 indicators*. While it is crucial to limit the number of variables in the score, the limit on 20 indicators is not a statistical requirement of PCA and using more than 20 variables is indeed possible. It is true that when there are many variables, indicators that are very close to each other may be selected and that the marginal gain in precision quickly drops with each additional indicator. However, the IFPRI/CGAP manual used the maximum figure of 20 in

order to promote a practical tool with fewer indicators and not because of statistical requirement of PCA.[240]

The following pages define the final AMK-PCA model and details the steps followed to guarantee that it is correctly specified:

1. Absolute value of the coefficients for each indicator is above 0.300

The coefficient indicates the degree of correlation between the component and the indicator; thus a large absolute value indicates a high level of correlation. In AMK-PCA, those indicators with coefficients above 0.300 were chosen.

Table VII-9: Component Matrix

	Component Loadings					
	1	2	3	4	5	6
Food Security [**Q.G.2.**].	.692	-.478	.079	-.021	.081	-.149
NUMADULTS	.545	.335	-.116	-.132	.432	-.177
HHhLiteracy	.335	.045	-.312	-.534	-.211	-.203
ClothingPC	.531	.287	.137	-.017	.217	.211
AccRankCasualLabor	-.484	-.192	.247	-.047	.592	-.214
C.7.2.	.407	-.388	-.388	.188	-.073	.347
C.11.2.	.406	-.251	-.031	.434	-.141	-.362
AccRankFood	-.390	.068	.111	-.487	.040	.485
D.7.1.	.541	-.452	.026	.056	-.294	.109
TotalHHFoodExpenseYearly	.656	.377	-.025	.324	.260	.125
E.3.1.	.518	.431	.433	-.050	-.211	-.010
E.3.2.	.690	.417	.342	-.199	-.108	-.093
E.3.3.	.712	.390	.276	.013	-.200	-.102
E.4.3.	.655	-.079	-.022	-.077	.166	-.083
E.6.1.	.661	.215	-.525	.148	.051	.081
HHTotalLandAreainHa	.477	.248	.037	-.222	.023	.146
AssetOrdinal	.755	.236	-.355	-.012	.179	.199
G.3	.627	-.536	.246	.064	.222	-.016
G.9.	.676	-.207	-.027	-.172	-.143	-.242
G.11.	-.410	.528	.015	.438	.001	-.065
G.12.	.350	-.214	.430	.343	-.058	.417
CopingReduceSold	-.373	.636	-.136	.208	-.154	-.079

Extraction Method: Principal Component Analysis.
a 6 components extracted.
b Only cases for which A.1. = No are used in the analysis phase.

[240] This fact has been confirmed by Dr. Manfred Zeller in personal communication to the author (Jan 07).

In AMK-PCA, all the selected 22 coefficients have values between 0.335 to 0.755 as can be seen in Table VII-9. As was discussed before, the exclusion decisions for indicators that showed a high correlation in Table VII-8 but that are not included in the final AMK-PCA (Table VII-9) are detailed in Annex 31.

2. Correct sign of each component coefficient

Positive coefficients indicate a direct relationship between the indicator and the relative poverty of the household. Negative coefficients indicate an inverse relationship between the indicator and the relative poverty of the household. **Indicators were accepted if the component loading** (i.e. the coefficients for each component) **had the expected sign** predicted by the theory. Table VII-9 shows the six components calculated from the indicators.

The answering options in the questionnaire have been ordered from "least" to "most." For instance, the answering options for the benchmark variable Food Security are:

(1) Often not enough to eat;
(2) Sometimes not enough to eat;
(3) Enough but not always what we want to eat;
(4) Enough and the kinds of food we want to eat.

Therefore the signs of the coefficients are generally positive because a high level of food security should contribute positively to the wellbeing of the household.

In the AMK-PCA there are four variables that show a negative coefficient. In the first three variables, the signs are expected according to theory because they indicate an inverse relationship with wellbeing: a sign is expected to be negative if the variable measured contributes negatively to the wellbeing of the household. In AMK's case, negative contributions to wellbeing include the following:

- households depend heavily on the income from temporary work (including migration);

- households where one of the main expenditures is in food items;
- households that reduce food consumption or other non-food expenses or sell personal property in order to cope with crises or unexpected events;

Finally, the variable "strategies in order to pay for healthcare" (question G.11. in the survey tool) lists as possible answering options the following:

(1) We never borrow or sell assets;
(2) We seldom (rarely) need to borrow or sell assets;
(3) We often (frequently, regularly) need to borrow money /sell assets;
(4) We always need to borrow money or sell assets (difficult).

Thus, the negative coefficient is expected since the frequency of borrowing money or selling assets in order to pay for healthcare should contribute negatively to the wellbeing of the households.

Eigenvalue of the component is at least 1

The larger the Eigenvalue,[241] the more that component is "explained" by the model's indicators. If the model has been carefully screened to include only indicators of poverty, the first component is likely to explain the variance associated with poverty. As a rule, a minimum Eigenvalue of 1 is needed if the component is to be considered representative of a common underlying dimension. In Table VII-10, the first five components indicate that a common variance is being measured. The first component explains 30.9 percent of total variance; the second 12.6 percent; the third 6.4 percent; the fourth 6.3 percent, the fifth 4.9 percent and the sixth 4.7 percent.

[241] Eigenvalue is the variance of the principal components (PC or eigenvectors); that is, var (PC_i) and expresses the variance of PC_i in the data being considered.

Table VII-10: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.805	30.934	30.934	6.805	30.934	30.934
2	2.768	12.583	43.517	2.768	12.583	43.517
3	1.412	6.417	49.933	1.412	6.417	49.933
4	1.380	6.273	56.207	1.380	6.273	56.207
5	1.072	4.873	61.080	1.072	4.873	61.080
6	1.036	4.707	65.787	1.036	4.707	65.787
7	.946	4.302	70.089			
8	.832	3.783	73.872			
9	.772	3.509	77.381			
10	.741	3.369	80.751			
11	.699	3.178	83.929			
12	.588	2.671	86.600			
13	.508	2.309	88.908			
14	.431	1.957	90.865			
15	.409	1.861	92.726			
16	.348	1.584	94.310			
17	.318	1.444	95.754			
18	.260	1.182	96.936			
19	.198	.899	97.835			
20	.186	.846	98.681			
21	.171	.775	99.457			
22	.120	.543	100.000			

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

Step 3: *Revise the test model until the results meet the performance requirements*

The test model was run and results interpreted until they met the performance requirements. Since the indicators chosen in steps 1 and 2 were those that correlated well with the benchmark indicator and had consistent signs in their contribution to the index, the first poverty component was expected to account for most movement in the indicators and is the "strongest" of all the components. The performance requirements involved:

a) Testing the relative size of communalities

Communalities indicate how well the indicators combine to identify different components. Thus, communalities represent the strength of the linear association among variables and components. In statistical terms, communalities is the squared multiple correlation coefficient between a variable and all other variables and represent the same

measure as *R-squared* in a regression analysis. The values of communalities range between 0 and 1, with higher numbers indicating that a greater share of common variance is explained by the extracted components. Some variables may contribute to the explanatory power of a poverty factor, but not account for variances captured by other common factors. Communalities close to 0 (less than 0.1) signal that the variable in question may be a candidate for exclusion in subsequent runs. However, a variable may have low communality coefficient but still be a relevant indicator for building the poverty component. Table VII-11 below shows the results for the AMK-PCA model.

Table VII-11: Communalities

	Initial	Extraction
G.2.	1.000	.743
NUMADULTS	1.000	.659
HHhLiteracy	1.000	.583
ClothingPC	1.000	.475
AccRankCasualLabor	1.000	.731
C.7.2.	1.000	.628
C.11.2.	1.000	.568
AccRankFood	1.000	.642
D.7.1.	1.000	.599
TotalHHFoodExpenseYearly	1.000	.762
E.3.1.	1.000	.688
E.3.2.	1.000	.826
E.3.3.	1.000	.787
E.4.3.	1.000	.476
E.6.1.	1.000	.790
HHTotalLandAreainHa	1.000	.362
AssetOrdinal	1.000	.823
G.3	1.000	.795
G.9.	1.000	.609
G.11.	1.000	.644
G.12.	1.000	.649
CopingReduceSold	1.000	.635

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

In the AMK-PCA, all communalities were above 0.1 with values ranging from 0.362 to 0.826 and thus all fall within an acceptable range, proving they are highly explanatory of poverty.

b) Kaiser-Meyer-Olkin measure of sampling adequacy

The Kaiser-Meyer- Olkin (KMO) test is an index for comparing the magnitudes of observed correlation coefficients with the magnitudes of partial correlation coefficients. The smaller the value of the index, the less appropriate the model. In general, scores above 0.60 are acceptable, above 0.70 are good, above 0.80 are commendable, and above 0.90 are exceptional. As Table VII-12 shows, the adequacy result of the AMK-PCA model is 0.818, a rather good result.

Table VII-12: KMO and Bartlett's Test

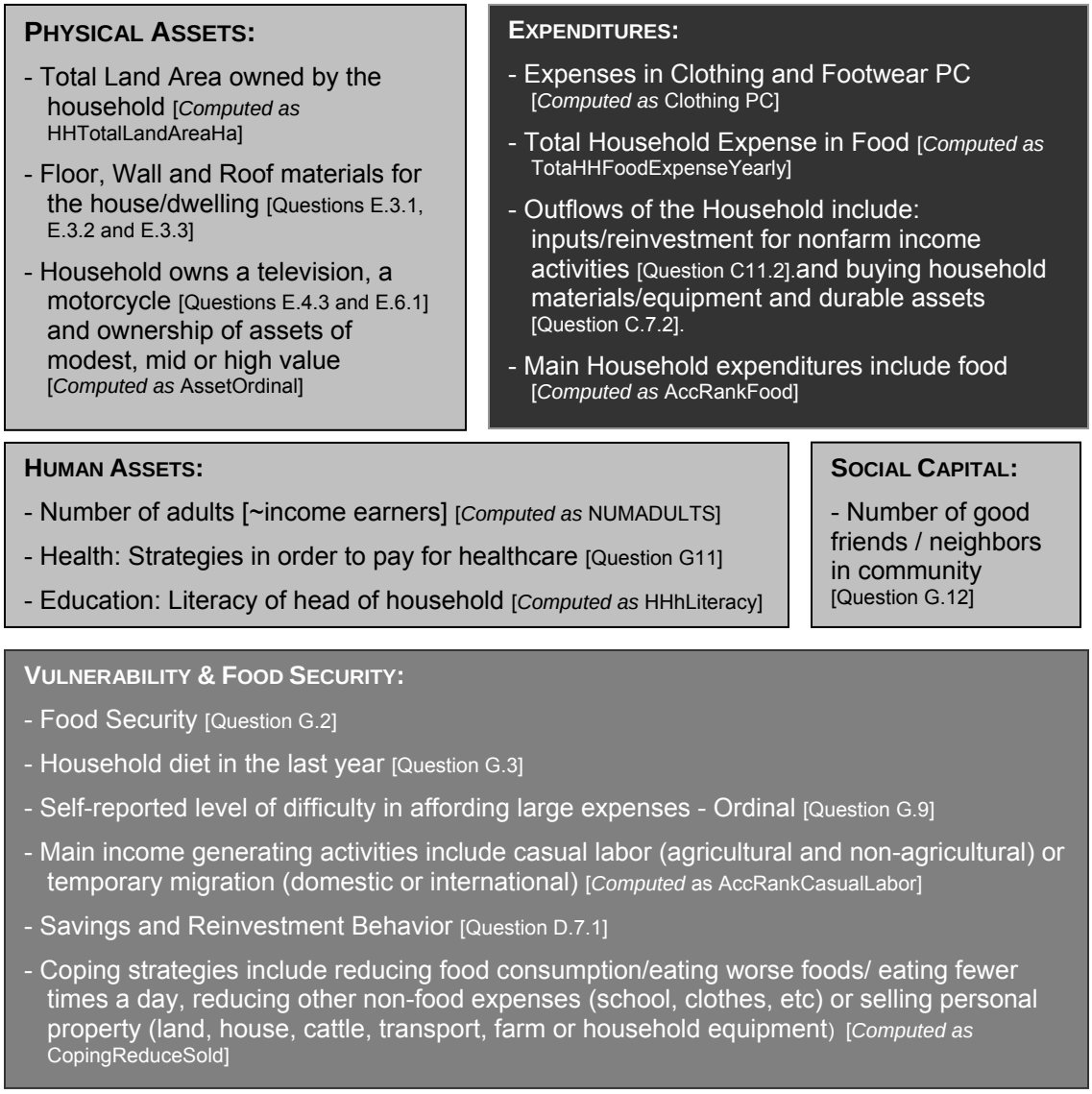
Test	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.818
Bartlett's Test of Sphericity	
Approx. Chi-Square	877.764
df	231
Sig	.000

a Only cases for which A.1. = No are used in the analysis phase.

Therefore when the IFPRI/CGAP criteria were followed, 22 indicators were selected for contributing to the AMK-PCA poverty score. The selection of these multidimensional indicators is further validated by the findings of the most recent qualitative study of rural households in Cambodia. As discussed in Chapter IV, the quotes from the participatory studies generally portray the poor and the destitute as powerless in the face of circumstances beyond their control (Ballard et al., 2006: 69). In addition, there is widespread consensus that housing conditions, the amount of land, the number of livestock and mode of transport are all useful indicators of wellbeing. Generally speaking, the rich have more and the poor have less of each (Ballard et al., 2006:68). More information about this participatory report as well as other recent livelihoods or poverty profiles reports have been already discussed extensively in Chapter IV.

These indicators combine different aspects and dimensions of poverty concerning expenditures, assets and vulnerability and can be grouped among these three main categories as follows (Figure VII-8):

Figure VII-8: AMK-PCA Wellbeing Score: Indicators and Dimensions



Annex 32 provides detailed explanations about where to find the questions to each of these indicators within the cash-flow survey tool as well as the formula applied to the variables that are additional computations. The statistical description of the chose 22 variables can be found in Table VII-13 below:

Table VII-13: Description of the 22 variables of the AMK-PCA Wellbeing Score

Indicator	N	Type Measure	Minimum	Maximum	Mean	Std. Deviation
G.2. [Food security]	450	Ordinal	1	4	3.02	.488
NUMADULTS	450	Scale	0	7	2.70	1.157
HHhLiteracy	449	Dummy	0	1	.61	.487
ClothingPC	447	Scale	.00	300,000	52,564.8435	47,664.5
AccRankCasualLabor	450	Dummy	0	1	.50	.501
C.7.2. [Outflow reinvest NonFarm]	450	Dummy	0	1	.52	.500
C.11.2.[Buy other HH materials Durable Assets]	450	Dummy	0	1	.39	.488
AccRankFood	450	Dummy	0	1	.94	.234
D.7.1. [Savings]	450	Dummy	0	1	.77	.422
TotalHHFoodExpenseYearly	449	Scale	169,000	15,960,000	2,450,589	1,673,069.5
E.3.1.[Floor]	449	Ordinal	1	3	1.88	.609
E.3.2. [Roof]	449	Ordinal	1	3	1.77	.659
E.3.3. [Walls]	448	Ordinal	1	3	1.72	.679
E.4.3. [TV]	450	Dummy	0	1	.50	.501
E.6.1. [Moto]	450	Dummy	0	1	.27	.445
HHTotalLandAreainHa	450	Scale	.00	30	2.43	2.48
AssetOrdinal	450	Ordinal	0	3	1.40	.767
G.3 [HH Diet]	449	Ordinal	1	3	2.07	.542
G.9. [HH Large Expenses – Ordinal]	450	Ordinal	1	3	1.53	.601
G.11. [HH Health Expenses – Ordinal]	449	Ordinal	1	4	1.46	.674
G.12. [HH Social Capital – Ordinal]	449	Ordinal	2	4	3.42	.562
CopingReduceSold	450	Ordinal	0	3	.31	.740

Therefore, and as a summary, in the construction of AMK-PCA model, indicators were accepted if their values for communality were above 0.36 obtaining an overall Kaiser-Meyer-Olkin (KMO) index of 0.818, which is considered a rather good adequacy result.

Step 4: ***Save the poverty component scores of the final model as a poverty index variable***

Once the final model for computing the "wellbeing score" has been decided, it is possible to establish relative poverty comparisons between client and nonclient households based on this index, running it on the total sample of 450 (instead of the sample of 90 nonclients that was used to calculate the score).[242]

[242] It is important to highlight that the model is not to be changed even if the measures of good fit declined slightly when introducing the sample of existing clients. This is because the MFI client cases cannot be used to set the model specifications since the random sample of MFI clients cannot be considered an unbiased representation of the local population.

When AMK-PCA was applied to the sample of 450, the model adequacy using the Kaiser-Meyer-Olkin (KMO) test was still rather good at 0.848.

The detailed results of the AMK-PCA applied to the complete sample can be found in Tables VII-14 to VII-18 below.

Table VII-14: AMK-PCA Applied to the Complete Sample (450) - KMO and Bartlett's Test

Test	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.848
Bartlett's Test of Sphericity	3097.983
Approx. Chi-Square	231
df	.000
Sig	.000

Table VII-15: AMK-PCA Applied to the Complete Sample (450) - Communalities

	Initial	Extraction
Food Security [**Q.G.2.**].	1.000	.450
NUMADULTS	1.000	.163
HHhLiteracy	1.000	.055
ClothingPC	1.000	.241
AccRankCasualLabor	1.000	.126
C.7.2.	1.000	.070
C.11.2.	1.000	.130
AccRankFood	1.000	.046
D.7.1.	1.000	.228
TotalHHFoodExpenseYearly	1.000	.354
E.3.1.	1.000	.224
E.3.2.	1.000	.344
E.3.3.	1.000	.433
E.4.3.	1.000	.312
E.6.1.	1.000	.420
HHTotalLandAreainHa	1.000	.197
AssetOrdinal	1.000	.524
G.3	1.000	.418
G.9.	1.000	.374
G.11.	1.000	.227
G.12.	1.000	.201
CopingReduceSold	1.000	.224

Extraction Method: Principal Component Analysis.

Table VII-16: AMK-PCA applied to the complete sample (450) - Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.762	26.190	26.190	5.762	26.190	26.190
2	2.119	9.630	35.819			
3	1.500	6.818	42.637			
4	1.264	5.748	48.384			
5	1.146	5.210	53.594			
6	1.049	4.767	58.362			
7	.988	4.490	62.852			
8	.933	4.239	67.091			
9	.860	3.907	70.998			
10	.780	3.543	74.542			
11	.693	3.151	77.693			
12	.647	2.943	80.636			
13	.619	2.813	83.449			
14	.572	2.598	86.047			
15	.552	2.510	88.557			
16	.467	2.122	90.678			
17	.452	2.055	92.733			
18	.442	2.009	94.743			
19	.401	1.825	96.567			
20	.322	1.461	98.029			
21	.260	1.183	99.212			
22	.173	.788	100.000			

Extraction Method: Principal Component Analysis.

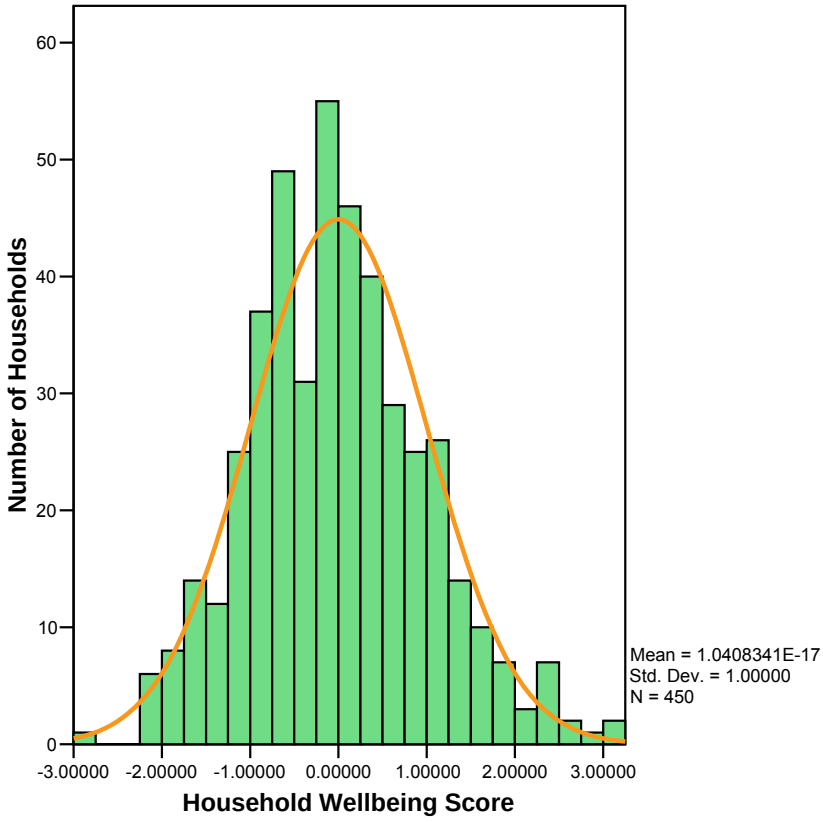
Table VII-17: AMK-PCA Applied to the Complete Sample (450) - Component Matrix

	Component
	1
Food Security [**Q.G.2.**].	.671
NUMADULTS	.404
HHhLiteracy	.235
ClothingPC	.491
AccRankCasualLabor	-.355
C.7.2.	.265
C.11.2.	.360
AccRankFood	-.215
D.7.1.	.478
TotalHHFoodExpenseYearly	.595
E.3.1.	.473
E.3.2.	.587
E.3.3.	.658
E.4.3.	.559
E.6.1.	.648
HHTotalLandAreainHa	.443
AssetOrdinal	.724
G.3	.646
G.9.	.612
G.11.	-.476
G.12.	.448
CopingReduceSold	-.473

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Finally, Figure VII-9 shows the distribution of the wellbeing score in standardized form.[243] Poverty scores shown in the graph range from -2.76 and 3.19 with the great majority of the households falling in the range between -1 and 1.

Figure VII-9: Distribution of Wellbeing Score



Methodology applied to the Food Expenditure Measure

The second methodology applied to the study, compares the daily per capita expenditure in food with the Cambodian food poverty line. The food poverty line is defined by a food basket that provides at least 2,100 calories of energy per day. Therefore, someone who consumes less that this food poverty line is not receiving the minimum amount of calories necessary to maintain their health. The following paragraphs detail how the daily food expenditure per capita is

[243] Standardizing a variable strips away the units in which a variable is measured. A standardized variable has a mean of zero and a standard deviation of 1. This standardization is performed automatically by SPSS before running PCA.

calculated drawing from the relevant questions in the survey tool as well as how the Cambodian food poverty line for rural areas has been updated to 2006.

Calculating the Daily Food Expenditure per capita

Daily food expenditure figures include not only the cash expenses in food items but also quantify the consumption from household's own production (including rice and other crops, vegetables or animals) and from other food items gathered, collected or fished. In order to calculate the household expenditures in food items, the following steps are followed. First, the WEEKLY FOOD EXPENDITURE IN CASH BY HOUSEHOLD is calculated as follows:

$$\text{WEEKLY CASH FOOD EXPENDITURE PER HOUSEHOLD}^{244} = \frac{\text{Normal (average) daily expense in food in the household (Question D.1.1) * 7 days per week} + \text{Average Weekly Expenditure in Food in the household (Question D.1.3))}}{2}$$

Secondly, ANNUAL HOUSEHOLD FOOD CONSUMPTION is calculated as follows:

$$\text{ANNUAL CASH EXPENDITURE AND MARKET VALUE OF FOOD PRODUCED AND CONSUMED WITHIN THE HOUSEHOLD} =$$

$$\text{WEEKLY CASH FOOD EXPENDITURE PER HOUSEHOLD (calculated above) * 52 weeks per year} + \text{Value or rice consumed by the household during the yea (Question D.2.3)} + \text{Value of additional rice bought (If Question D.3 = 1 to 10 months)} + \text{Value of other food produced for household consumption during the year (Question D.4)} + \text{Value of other food gathered, collected or fished for household consumption during the year (Question D.5)}$$

[244] Calculating food expenditures as the average between reported daily expenditures * 7 and the self-reported weekly expenses was originally tested by FINCA (Hatch, 2002). Also, note that question D.1.2 is used as a filter for assessing correct responses but it is not used in the final calculation.

The value of additional rice bought by households is included only in those households that report resorting to cash expenditures in rice for more than 1 month but less than 10 months a year (both inclusive). This is because when households do not produce rice, they buy rice regularly and thus, the expenditure will be included in the WEEKLY FOOD EXPENDITURE IN CASH BY HOUSEHOLD described above. However, if households are rice self-sufficient for part of the year, it is likely that they will be rice self-sufficient at the time of the interview (right after harvest), and thus rice is likely to be bought not on daily or weekly bases but yearly in sacks/bags. In order to avoid an underestimation of rice consumption (which is the staple in the Cambodian diet), a monetization of the consumption during these months is attributed. This monetization basically multiplies the number of months with cash purchases in rice, estimating 20 Kg of rice per adult and 10 Kg of rice per child at an average price of R 600 per Kg.

Thirdly, the DAILY PER CAPITA EXPENDITURE IN FOOD is calculated as follows:

$$\text{DAILY FOOD EXPENDITURE PER CAPITA} = \frac{\text{ANNUAL CASH EXPENDITURE AND MARKET VALUE OF FOOD PRODUCED AND CONSUMED WITHIN THE HOUSEHOLD (calculated above)} \;/\; 365 \text{ days}}{\text{Number of members in the household (Question A.5)}}$$

Updating the Food Poverty Line for rural areas

On the other hand, the food poverty line in rural areas was estimated in 2004 but had to be updated with the corresponding inflation at the time of the fieldwork.

The World Bank estimates the international (dollar-a-day) poverty line in 2004 at R 1,382 per capita per day (or USD 0.34 in 2004 current prices). The same report advocates for the use of the national poverty line instead of the dollar-a-day international poverty line. While the international poverty line is invaluable for rough comparisons between countries and over time, "for the purposes of national level analysis it is preferable to use a national poverty line

constructed following accepted international principles and with reference to a country-specific consumption bundle" (World Bank, 2006:38). The overall Cambodian poverty line for rural areas was set at R 1,753 and the Cambodian food poverty line for rural areas is set at R 1,389 in 2004 (Table VII-18).

The Cambodian food poverty line allows a person to consume a food basket that provides at least 2,100 calories of energy per day and this basket of food is based on the quantities of foods consumed by persons in the third quintile of the per capita consumption distribution (World Bank, 2006:20). However, updating the poverty line in Cambodia is not such a straight forward exercise because rural inflation figures are not available and there is no baseline inflation data for 1993.[245]

Due to the lack of rural inflation figures, in order to update to Food Poverty Line in 2004 to the prices at the time of finishing the fieldwork the rural food poverty line was updated with the Phnom Penh Consumer Price Index (CPI) for food and beverages *only*. The proxy has been calculated as follows:

$$\text{Food inflation update}^{246} = \frac{\text{Phnom Penh CPI for "Food, beverages and tobacco" May 2006} - \text{Phnom Penh CPI for "Food, beverages and tobacco" Dec 2004}}{\text{Phnom Penh CPI for "Food, beverages and tobacco" Dec 2004}} = \frac{122.22 - 109.54}{109.54} = 11.58\%$$

Thus, the Proxy Food Poverty Line for Rural Areas as of May 2006 (the time in which fieldwork finished) is calculated as 1,389*1.1158= 1,550, as shown in Table VII-18.

[245] In fact, the World Bank updated the food poverty line to 2004 applying the average annual rates of inflation in food prices in rural areas, i.e. using food price inflation in Phnom Penh (weighted by the reference 1993/94 food bundle) and household survey data to estimate regional differences in food prices. The 1993/94 baseline food prices are median values calculated from household responses on the value and quantity of foods consumed.

[246] CPI Inflation (end of period) in Phnom Penh was 6.66 percent in 2005 and 2.81 percent in 2006. Note that period average inflation in 2005 was 5.9 percent and 4.7 percent in 2006.

Table VII-18: Food Poverty Lines (FPL)

	Cambodian FPL 2004		AMK Proxy FPL 2006		
	Riel (per day)		Riel (per day)	USD (per day)*	
Phnom Penh	1,782		1,988	$0.49	
Other Urban	1,568		1,750	$0.43	
Rural	**1,389**		**1,550**	**$0.38**	

Food Poverty Line (FPL) 2004: World Bank (2006: 20)

*Note: The exchange rate of 1USD =KHR 4,096 is the average of the exchange rate from March to May 2006 (the period in which fieldwork took place) and has been used throughout this dissertation.

Chapter VIII - ANALYSIS OF DATA

*Two poverty measurements are now available for the sample. The AMK-PCA Wellbeing Score is a **relative** poverty score and measures whether a household is worse off or better off compared to other households. AMK Daily Food Expenditure figure is an **absolute** poverty measure that is benchmarked against the Cambodian food poverty line for rural areas. On the other hand, the AMK-PCA Wellbeing Score is a **multidimensional** measure of poverty covering expenditures, physical and human assets as well as vulnerability and food security while the AMK Daily Food Expenditure figure **only** measures the **expenditure** dimension. Chapter VIII analyzes the results from both poverty measures and compares these results to assess their adequacy.*

AMK-PCA Wellbeing Score: Measuring Relative Poverty

The AMK wellbeing score is a *relative* poverty score and measures whether a household is *worse off or better off compared to other households.* In Chapter VII each household was assigned a wellbeing score: the lower the score, the poorer the household relative to all other households with higher scores. The following pages will analyze the data by applying the following analytical tools:

- The cumulative frequencies of the score of clients and nonclients
- The average wellbeing score by client status and seniority
- Tercile and quartile analysis

Figure VIII-1 displays the cumulative frequency of the wellbeing score for AMK client and nonclient households and shows that a margin of difference exists between the two groups except for the poorest 25 percent of the households. Thus, beyond the poorest 25 percent of households (where no difference in wellbeing/poverty levels can be seen between client and nonclient), nonclient households seem to enjoy higher wellbeing scores than those of AMK client households.

Figure VIII-1: Cumulative Frequency of Wellbeing Score

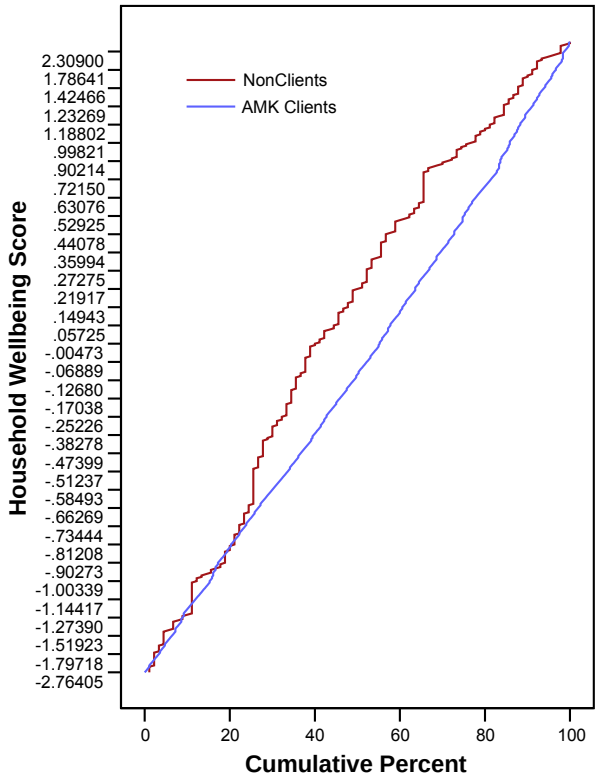


Figure VIII-2 shows the average wellbeing score by client status. The average wellbeing score for AMK clients was -0.06 and the average wellbeing score for nonclients was 0.24. Since the lower the wellbeing score, the poorer the household is compared to all others with higher scores, the average scores show that clients seem poorer than nonclients.

Figure VIII-2: Average Household Wellbeing Score

However, to truly measure the depth of poverty outreach of an MFI, data should be restricted to the poverty levels of new clients only. As Matin et al. argue, "the measurement of any form of depth of outreach is fraught with methodological problems" (1999: 25) and what is crucial is to find the level of poverty of clients at the time of *joining* as opposed to the *current* poverty information on *current* participants. The current poverty status of a client may not be the same as the poverty status of the client at the time of joining, presumably (among other reasons) because access to microfinance services should help clients precisely in overcoming poverty.[247] In order to assess the depth of outreach for those clients joining AMK, three different categories have been defined:[248]

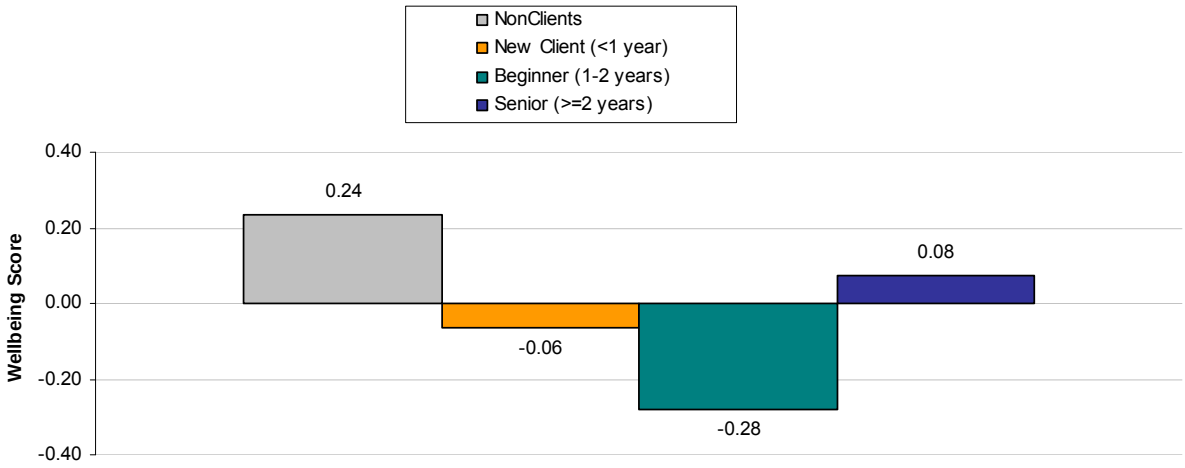
- New clients are defined as those that borrowed for the first time in the last 12 months;
- Beginner clients are defined as those households who have been clients for at least one year but less than 2 years.
- Senior clients are those who have been clients of AMK for 2 years or above

Note that the senior category is only relevant for Banteay Meanchey, Kampong Speu and Pursat branches since Battambang and Siem Reap only started operations in 2005; for the same reason, all clients in Battambang and Siem Reap are new clients as there is no beginner client category in those two provinces.

Figure VIII-3 shows that the average wellbeing score for new clients was -0.06 and the average wellbeing score for nonclients was 0.24, indicating that new clients seem poorer than the nonclients households category. Interestingly, it is the beginner category that shows the lowest wellbeing score. This finding may indicate that the second cycle of a loan may be the most vulnerable period for a borrowing households and it will be further explored in the tercile analysis.

[247] The second methodological problem is the difficulty in factoring in the dropouts into the analysis. This is because the set of current participants may be a biased sample of all participants that ever joined because dropout behavior might not be random and independent of initial endowment (Matin et al., 1999:25).
[248] As of 31 December 2005, the date in which sampling took place.

Figure VIII-3: Average Household Wellbeing Score (by Seniority of Client)



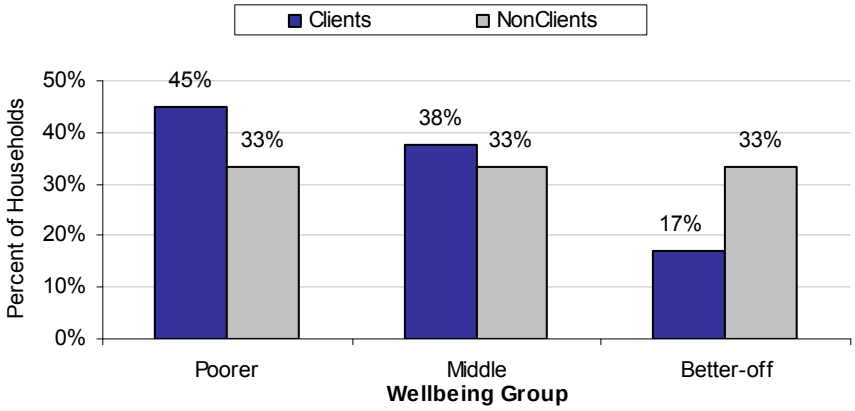
The t-test of the means of clients and nonclients for the total sample is statistically significant (t (123) = 2.28, p = 0.025) as it is for new clients and nonclients (t (240) = -2.13, p = 0.034). Detailed information of the t-tests of means is available in Annex 33.

Nevertheless, the most interesting analytical tool to compare the relative poverty of the clients and the control group is tercile analysis. Tercile analysis divides the wellbeing score results into three separate groups of client and nonclient households to be compared: the poorer group, the middle group and the better-off group. The following steps were followed to analyze the tercile results:

- First, the 90 nonclient sample were sorted in ascending order according to their wellbeing scores (i.e. the greater the value of the score, the relatively wealthier the household).
- Second, this sample was divided into terciles based on the wellbeing scores: the bottom third of the nonclient households are grouped into the "poorer" group, followed by the "middle"-ranked group, and finally, the "better-off" group. Since there are 90 nonclients, each group contains 30 households. The cutoff scores for each tercile define the limits of each poverty group and they were -0.183 and 0.822.
- Third, the 360 client households were then categorized into the same three groups based on their household scores using the cutoff scores defined above for the AMC-PCA case (i.e. -0.18 and 0.82).

If the pattern of poverty among client households matches exactly that of nonclient households, the client households will divide equally among the three wellbeing groupings in the same way as nonclient households, with 33 percent falling into each group. Any deviation from this equal proportion would signal a difference between the client and nonclient populations. The results are shown in Figure VIII-4 below: clients are overrepresented within the poorest tercile and underrepresented in the highest tercile. Therefore, AMK shows an extensive poverty outreach, reaching a larger share of the poorer households than is found in the general population.

Figure VIII-4: Terciles - Total Sample (450)

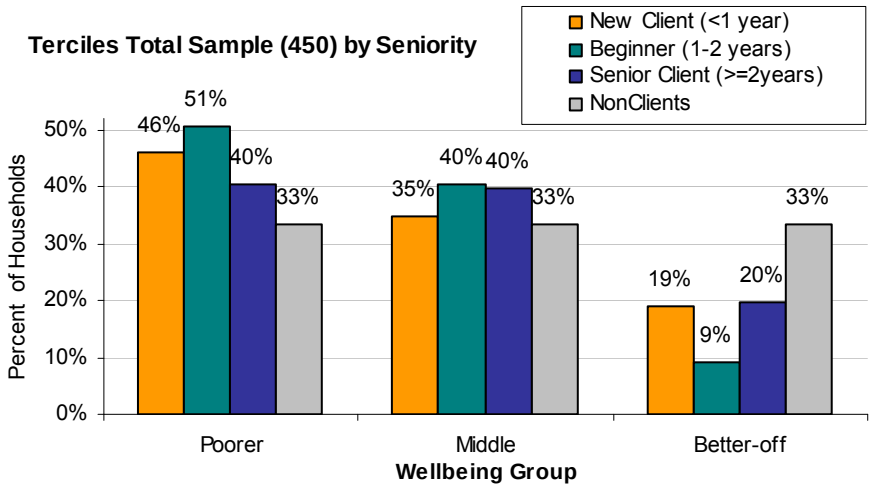


The significance test for these terciles confirms that the difference is statistically significant (Chi-Square (2, N = 450) = 11.82, p = 0.003). For further information on significance tests and graphical examples of MFIs with equal and lower depth of poverty outreach please see Annex 34.

The tercile analysis by seniority of clients is particularly useful to estimate the depth of outreach of an MFI. As Figure VIII-5 shows, new clients are still overrepresented in the poorer category and underrepresented in the richer category, which again corroborates that brand new client households seem poorer than nonclient households. What is interesting of this last analysis is that it is actually the beginner category that shows the largest discrepancy (proportionally), with the highest overrepresentation in the poorest category and the lowest underrepresentation in the better-off category. This finding seems to indicate that the first cycle of a loan may be the most vulnerable period for borrowing households: for the first year of borrowing from a formal source, households are likely to undergo budget constraints in order to service the loan with the

profits or cash-flows generated in the period and it is only after the second year that the analysis hints on a (relative) improvement in wellbeing for borrowing households when senior clients start to reduce their (proportional) representation in the poorer category and increase their (proportional) representation in the better-off category.

Figure VIII-5: Terciles by Seniority



The significance test for these terciles confirms that the difference is statistically significant (Chi-Square (6, N = 450) = 16.87, p = 0.01) but note that the senior category is only relevant for Banteay Meanchey, Kampong Speu and Pursat branches. For further information please see Annex 34.

Finally, this dissertation also tested a quartile analysis. This is because the results of focus group discussions in the most recent qualitative study (Ballard, ed., 2006) show villagers self-selecting themselves in both three and four wealth groups. Concretely, in the 24 villages where the qualitative study took place, 13 villages identified and defined four wellbeing ranking (i.e. rich, medium income, poor and destitute or very poor) while in the other 11 villages people identified and defined only three wellbeing rankings but with some degree of variation, i.e. in some villages there was not a category for rich and in other villages no category for destitute (Ballard, 2007c:58).[249]

[249] The Khmer terms for each of these categories are not always easy to translate. As footnoted in Ballard, people mostly used the Khmer words *neak mean* for rich households or individuals, although some used *neak thou thear*.

The preference for tercile analysis stem primarily because of this lack of consensus. Nevertheless, the results of the quartile analysis are also interesting and shown below. Figure VIII-6 shows that while clients remain underrepresented in the better-off category, clients are also clearly overrepresented in the poor category but representation is nearly equivalent in the poorest category.

Figure VIII-6: Quartiles - Total Sample (450)

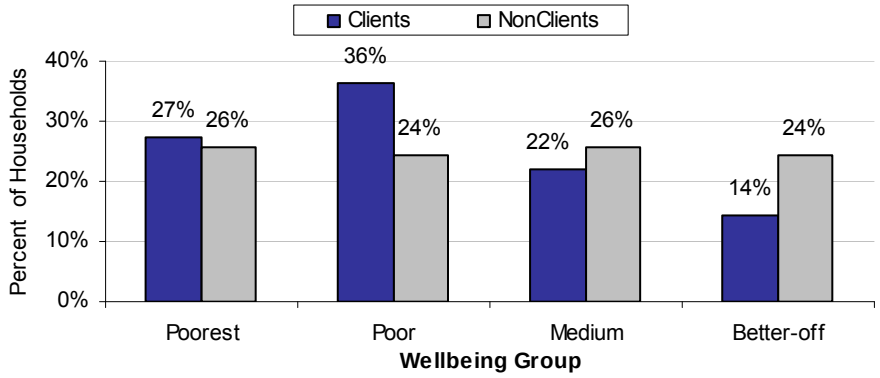
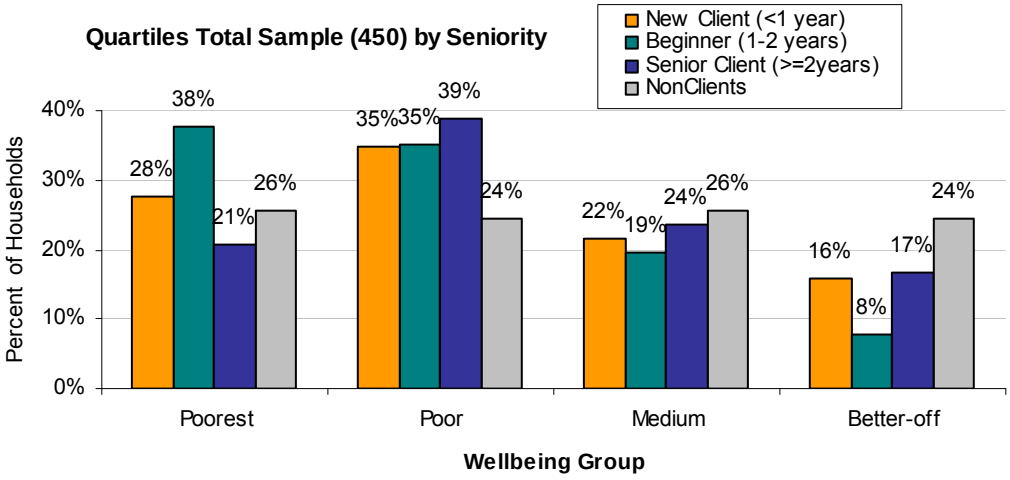


Figure VIII-7 displays the quartile analysis by seniority group and corroborates the previous findings: brand new client households seem (relatively) poorer than nonclient households. Figure VIII-7 also corroborates that it is the beginner category that shows the largest (relative) discrepancy, with the largest overrepresentation in the poorest category and the lowest underrepresentation in the better-off category, likely because households are most vulnerable to poverty during the second cycle of a loan. Once past the third or fourth cycle of a loan, however, access to financial services becomes more secured and, after their first full year AMK client households have simultaneous access to AMK emergency loans in cases of crises (as seen in the product description in Chapter VI).

For medium income households and individuals, people used *neak mathium*. For the poor people used *neak kror*. For the destitute, people mostly used *neak toal*, although some used *neak kror nah* or *neak ath* (2007c: 58).

Figure VIII-7: Quartiles by Seniority



The significance tests show that the difference is statistically significant between client and nonclients (Chi-Square (3, N=450) = 7.89, p= 0.048) but the test fails to show that the difference is statistically significant by seniority (Chi-Square (9, N = 450) = 16.60, p= 0.055). Please see Annex 35 for details on the calculations necessary for the quartile analysis as well as the significance tests for clients and nonclients and by seniority of client household.

Food Security versus Expenditure in Clothing and Footwear: Choice of AMK-PCA model

As it was introduced before, the empirical section of this dissertation actually tested two potential benchmarks: Clothing and Footwear and Food Security in order to decide which one would produce the best AMK-PCA model. The best score was defined as the one that portrayed a more complete picture of how poverty and vulnerability affect rural households in Cambodia, based on the literature review of the poverty profile discussed in Chapter IV.

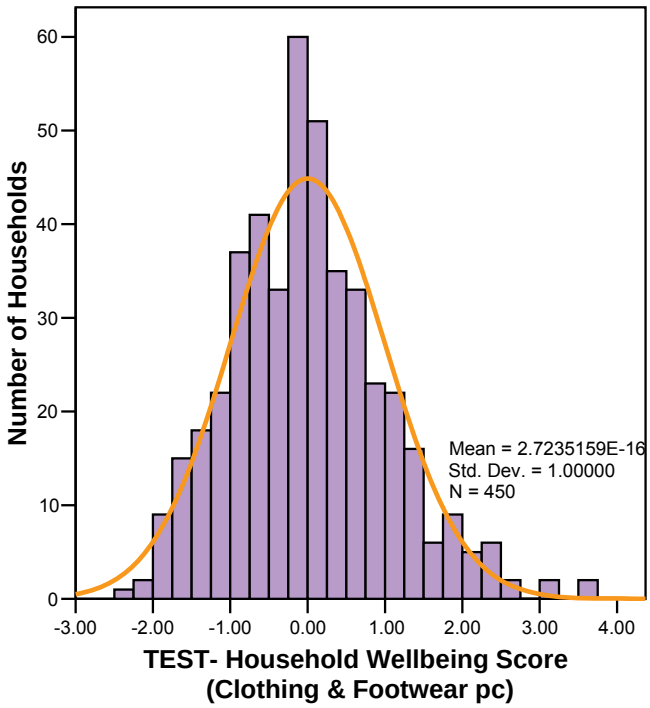
The conclusion of the testing was that Food Security provided a better benchmark to define wellbeing in rural Cambodia. This is because, when applying the same statistical steps to construct the score, the indicators that define the score when Food Security is used as a benchmark cover some key dimensions of poverty and vulnerability (such as education and

health) that are not covered when the wellbeing score is built using Clothing and Footwear as a benchmark.

This section details how data has been analyzed in order to assess which would become the chose AMK-PCA model. The following pages summarize the statistical comparison of both models as well as the specific reasons why the model based on Food Security is preferred over the model based on Clothing and Footwear per capita.

The results of both scores are, in fact, very similar. Figure VIII-8 shows the distribution of the AMK-PCA household wellbeing score applying Clothing and Footwear per capita in standardized form while Figure VIII-9 shows the cumulative frequency for nonclients and AMK clients.

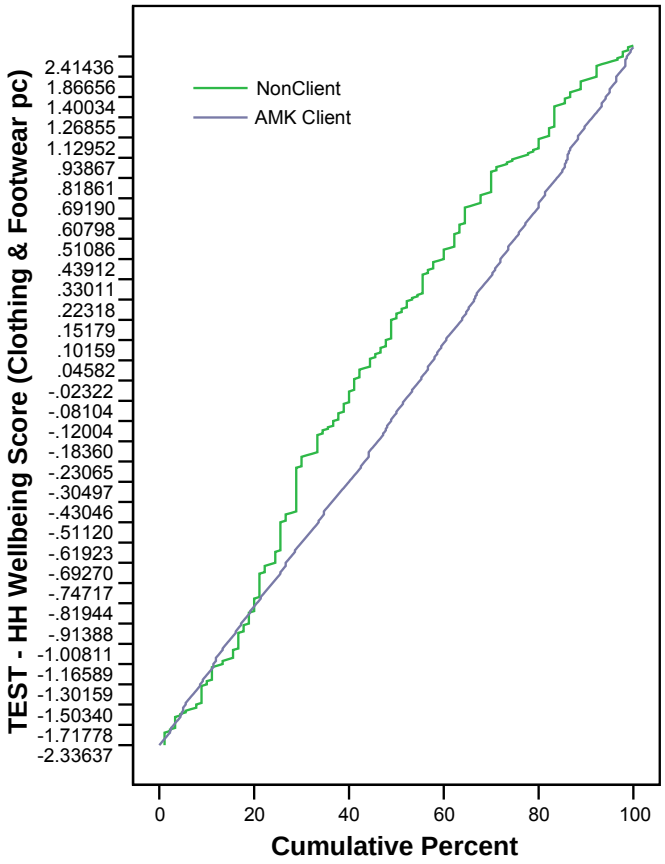
Figure VIII-8: Household Wellbeing Score (Test: Clothing and Footwear pc)



Comparing Figure VIII-8 with Figure VIII-1 (the first graph of the chapter), the similarities are striking. In both cases the great majority of the households fall in the range between -1 and 1. The distribution ranges from -2.76 and 3.19 in the case of Food Security as a benchmark and

from -2.34 and 3.64 in the case of Clothing and Footwear per capita as a benchmark. Similarly, the comparison of Figure VIII-9 with Figure VII-9 (the last graph of Chapter VII) highlights that, in both cases, a margin of difference exists between the poverty levels of clients and nonclients except for the poorest 25 percent of the households where no difference is seen between the groups.

Figure VIII-9: Cumulative Frequency Wellbeing Score (Test: Clothing and Footwear pc)



In both cases, the average wellbeing score for AMK clients was -0.06 for and the average wellbeing score for nonclients was 0.24 in the case of AMK-PCA: Food Security and 0.23 in the case of AMK-PCA: Clothing and Footwear pc. These figures further confirm that both scores produce very similar results. Also, the t-test of the means of clients and nonclients for the total sample is statistically significant in both cases: AMK-PCA: Food Security ($t(123)=2.28$, $p=0.025$) and AMK-PCA: Clothing and Footwear: ($t(120)=2.17$, $p=0.032$). Further information on t-test of means is available in Annex 33 and last section of Annex 36, respectively.

However the composition of the score is slightly different. The AMK-PCA: Food Security score has been constructed with 22 indicators while the AMK-PCA: Clothing and Footwear has been constructed with 20 indicators. Table VIII-1 shows that both scores share 17 indicators.

Table VIII-1: Common Indicators by Dimensions of Analysis

	Common Indicators to AMK-PCA Score (17)
Expenditures	✓Expenses in Clothing and Footwear PC ✓Total HH Expense in Food
Assets	
- Physical Assets	✓Total land owned ✓House floor, wall & roof materials ✓HH owns a television / motorcycle + ordinal ownership of assets of modest-, mid- or high- value
- Human Assets	✓Number of adults
- Social Capital	✓Number of good friends / neighbors in community
Vulnerability	✓Food Security ✓HH diet in the last year ✓Self-reported level of difficulty in affording large expenses ✓Incidence of reducing quality of foods ✓Main HH income generating activities include casual labor (agri + non-agri) or temporary migration (domestic or international) ✓Savings / Reinvestment behavior

However, the AMK-PCA: Clothing and Footwear score also includes three additional indicators and AMK-PCA: Food Security also includes 5 additional indicators. Table VIII-2 show each of these additional indicators.

Table VIII-2: Comparison of Additional Indicators by Dimensions of Analysis

	Additional Indicators	
	AMK-PCA: Food Security	**AMK-PCA: Clothing and Footwear**
Expenditures	✓HH Outflows include: inputs/reinvest nonfarm income activities + buying HH materials / durable assets ✓Main HH expenditures include food	✓Expenses in Clothing/Footwear for head of HH ✓New clothes for Khmer New Year for all HH members in HH last 2 years
Assets		
- Physical Assets		✓Toilet type
- Human Assets	✓Health: Strategies in order to pay for healthcare ✓Education: Literacy of HH head	
Vulnerability	✓Coping strategies include reduce food consumption/eat worse foods/ eat fewer times a day, reduce other non-food expenses or sell personal property	

Therefore, while the statistical results of both scores are very much comparable, the composition of the AMK-PCA Wellbeing Score based on the Food Security benchmark portrays a more complete picture of the wellbeing of rural households in Cambodia (as depicted in the second section of Chapter IV: Poverty Profile) and better responds to the concepts of poverty and vulnerability as outlined in the last section of Chapter III – Reasons behind the choice of poverty measurement tools).

In particular, the indicators that make the AMK-PCA Food Security Score preferable are those that cover two basic human asset areas, specifically:

- Health, as measured as the strategies applied in order to pay for health care, and
- Education, as measured as the literacy level of the head of the household.

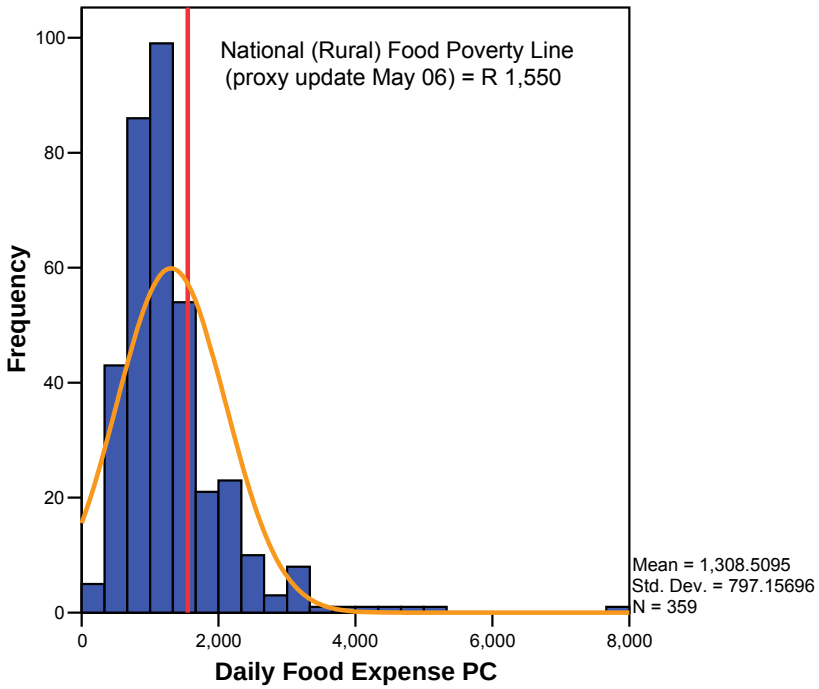
Annex 36 provides the detailed PCA procedure when applying clothing at footwear as a benchmark, following exactly the same structure as the procedure for the AMK-PCA when applying Food Security as the benchmark.

Analysis of Food Expenditure per Capita: An Absolute Poverty Benchmark

The AMK wellbeing score calibrates relative poverty but does not provide information on the *absolute level of poverty*, i.e. it measures the extent to which a household is worse off or better off compared to other households, but does not assess the actual level of deprivation of the poorer category of households or the level of affluence of the better-off. To estimate absolute levels of poverty, AMK compares the daily food expenditure per capita with the food poverty line in rural areas.

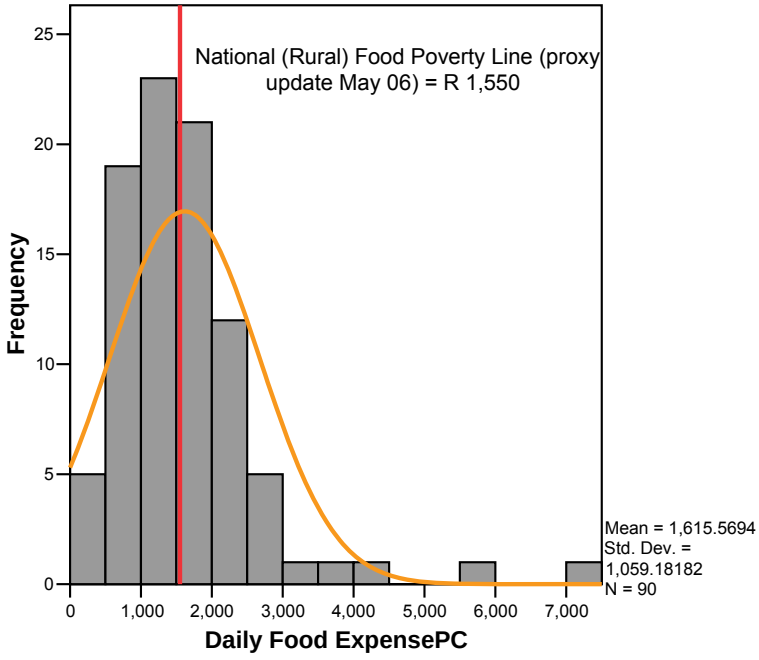
Figure VIII-10 below shows the histogram of the daily food expenses per capita for AMK clients and compares it with the updated rural food poverty line, confirming that most AMK clients are consuming less than the minimum calorie intake per day and thus can be classified as poor.

Figure VIII-10: AMK Clients



The equivalent analysis for nonclients further confirms the findings from the AMK-PCA Wellbeing Score. Figure VIII-11 shows the Daily Food Expenses per capita for nonclients, illustrating that there are fewer nonclients consuming less than the minimum calorie intake per day than AMK clients.

Figure VIII-11: Nonclients



In terms of measuring exclusively the depth of outreach, Figure VIII-12 shows the Daily Food Expenses per capita for new clients only (i.e. those who borrowed for the first time in the last 12 months), further confirming that most new clients in AMK consume less than the minimum calorie intake per day required for wellbeing (i.e. extensive poverty outreach).

Figure VIII-12: New Clients

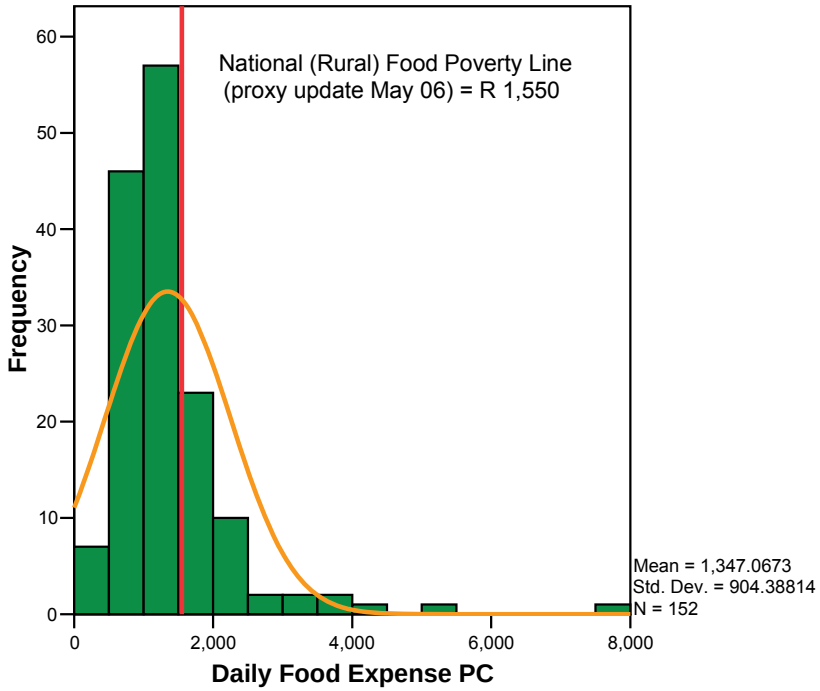


Table VIII-3 below show the information in percentage terms: 75 percent of AMK clients consumed less than the Cambodian (rural) food poverty line (R 1,550) while 57 percent of nonclients consumed less than this benchmark. Further, 75 percent of new clients, 78 percent of beginner clients and 73 percent of senior clients consumed less than the food poverty line (please note that senior category is only relevant for Banteay Meanchey, Kampong Speu and Pursat).

The significance tests show that the differences are statistically significant: By status of household as client (Chi-Square (1, N = 450) = 11.43, p= 0.001) and by seniority of client households (Chi-Square (3, N = 450) = 12.12, p = 0.007). Please see Annex 37 for further details on the percentages below the food poverty line for rural areas and the corresponding significance tests.

Table VIII-3: Households below AMK Proxy 2006 Food Rural National Poverty Line (R1,550)

	Overall Sample (n=450)	Non Client Households (n=90)	Client Households (n=360)			
			Overall Client (n=360)	By Client Seniority		
				New Client (<1 year) (n=152)	Beginner (1-2 years) (n=77)	Senior (>=2 years) (n=131)
Number	320	51	269	114	60	95
Percentage	**71%**	**57%**	**75%**	**75%**	**78%**	**73%**

The data further suggests that the poverty incidence in the areas where fieldwork took place is much higher than the national average. About 57 percent of the control group of nonclient households (which represent the general rural population) consume less per day than the food rural poverty line while the general poverty headcount in rural areas was 39 percent. Furthermore, the benchmark is not directly comparable because the information on Cambodian poverty headcount refers to the Overall Poverty Line (which includes both food and other non-food items) while the AMK's Daily Food Expenditure per capita, only computes and compares against the Food Poverty Line. However, the comparison may reflect the fact that AMK does work in areas with higher poverty incidence (see Figure VI-2 in page 198 for details).

As was discussed in Chapter IV, poverty in Cambodia is fundamentally a rural phenomenon with 90 percent of the poor living in rural areas and with very high spatial concentration of poverty: of the existing 1,628 communes, 104 communes in rural areas constitute more than 75 percent of the poor, while 394 others constitute 50-75 percent of the poor (see map in Annex 8 and the spatial concentration section of the Nature of Poverty in Cambodia in Chapter IV, page 128).

Poverty estimates by region indicate that the geographic areas with the highest incidence of rural poverty are precisely those where AMK works. Table VIII-4 summarizes the poverty headcount (and its rural and urban estimates) by region showing that while the overall rate is 35 percent, the Plateau / Mountains and the Tonle Sap regions have the highest incidence of poverty (52 and 43% % respectively). But because poverty is higher in rural areas, these geographic zones also have the highest incidence of rural poverty (56% and 45% respectively). Four provinces of the five provinces where fieldwork took place are in the Tonle Sap area (BMC, BTB, SRP and PST) and one in the Plateau/ Mountain Area (KSP). Furthermore, when the same analysis is

performed at the provincial level, four of the five provinces are well above the overall poverty line and one is barely below (BTB at 34 percent poverty headcount).[250]

Table VIII-4: Summary Poverty Headcount by Region

	Total	Rural	Urban
Geographical Zones			
Phnom Penh Zone	5%	9%	1%
Plains Zone	32%	33%	14%
Tonle Sap Zone	**43%**	**45%**	28%
Costal Zone	27%	30%	20%
Plateau / Mountains Zone	**52%**	**56%**	33%
Total Cambodia	35%	39%	18%*

* Total 18%; Phnom Penh = 5%; Other Urban Areas = 24%
Source: RGC (2006: 46-53). Full details Table IV-2, page 131

Table VIII-5 provides data on the poverty headcount by province as well as the distribution of the sample: about 36 percent of the interviews took place in provinces with the highest incidence of poverty (52-57% in SPR and KSP), 56 percent of the interviews took place in provinces with the second-high incidence of poverty (37-40% in BMC and PST) and only 7 percent of the interviews took place in province with lower poverty incidence that the national average (BTB with 34%).

Table VIII-5: Summary Poverty Headcount by Province and Sample (in %)

Provinces where fieldwork took place (by Geographic Zone)	Poverty Headcount Index (%)	AMK Sample (%)
Tonle Sap Zone		
Banteay Meanchey (BMC)	37%	33%
Battambang (BTB)	34%	7%
Siem Reap (SRP)	52%	23%
Kampong Chhnang / Pursat (PST)	40%	23%
Plateau / Mountains Zone		
Kampong Speu (KSP)	57%	13%

Source: RGC (2006: 46-53). Details in Table IV-2, page 131 and Table VII-4, page 222.

[250] The provinces with the highest incidence of poverty (i.e. above the national average of 35%) are, in decreasing order: Kampong Speu (57%), Siem Reap (52%), Kampong Thom (52%), Kampong Chhnang/Pursat (40%), Other provinces: Kratie, Mondolkiri, Preah Vihear, Ratanakiry, Stung Treng, Oddar Mean Chey and Pailin (46%), Banteay Meanchey (37%), Kampong Cham (37%), Prey Veng (37%) and Svay Rieng (36%). Source: Table IV-2: page 131.

Given all the figures on spatial concentration of poverty highlighted above and the fact that poverty is higher in remote rural areas and the villages sampled are indeed remote,[251] this figure of 57 percent of nonclients below the food poverty line in rural areas is within sensible limits.

Therefore, it can be concluded that applying a monetary one-dimensional poverty measurement tool the results corroborate the finding of AMK's relative poverty measurement tool, with AMK's depth of poverty outreach is well above the level of poverty generally found in rural areas.

Comparing Results of Absolute and Relative Poverty Measures

Table VIII-6 below provides a simple comparison in order to assess whether the results of both relative and poverty measures, as well as multidimensional versus one-dimensional poverty measures are in fact compatible.

Table VIII-6: Comparing Tools: % of Wellbeing Groups Below Food Poverty Line

Wellbeing Groups	n (n = 360)	% Client Households Below AMK Proxy 2006 Food Rural National Poverty Line (R1,550)
TERCILE ANALYSIS		
Poorer	162	**88%**
Medium	136	**69%**
Better-off	62	**53%**
QUARTILE ANALYSIS		
Poorest	98	**93%**
Poor	131	**76%**
Medium	79	**66%**
Better-off	52	**50%**

The analysis of the data further confirms the reliability of results. When applying tercile analysis, the group of poorer client households also has the highest percentage of being a

[251] See histogram: distance from the branch to the village measured in minutes traveled (Figure VII-1, page 223).

household below the food (rural) poverty line while the better-off group shows the lowest incidence of households with daily consumption below the food (rural) poverty line.

On the other hand, when the analysis is further refined for four categories (quartile analysis), the group of the poorest client households has the highest percentage of household below the food (rural) poverty line and that this percentage continues decreasing to reach a minimum at the better-off group shows, which shows the lowest incidence of households with daily consumption below the food (rural) poverty line.

The same conclusion remains when the analysis is reversed; i.e. comparing the number of clients with daily consumption below the food (rural) poverty line with their classification within the relative poverty groups of the AMK-PCA analysis. Table VIII-7 shows the results by tercile and by quartile analysis: those clients spending in food consumption less than R 1,550 per day are more likely to be classified in the lower and lowest categories of the AMK-PCA Wellbeing Score, with 53 percent of "Below Food Poverty Line" households located in the poorer category of the tercile analysis and 71 percent of "Below Food Poverty Line" households located in the combined poorest and poor category of the quartile analysis.

Table VIII-7: Comparing Tools: % of clients below Poverty Lines by Wellbeing Group

Client Households	n (n=360)	Tercile			Quartile			
		Poorer	Medium	Better-off	Poorest	Poor	Medium	Better-off
BELOW AMK Proxy 2006 Food Rural National Poverty Line (R1,550)	269	53%	35%	12%	34%	37%	19%	10%
ABOVE AMK Proxy 2006 Food Rural National Poverty Line (R1,550)	91	22%	46%	32%	8%	34%	30%	29%

The significance tests for both type of comparisons confirm that the differences are statistically significant with (Chi-Square (2, N = 360) = 31.74, p = 0.000) in the case of terciles and (Chi-Square (3, N = 360) = 37.38, p = 0.000) in the case of quartiles. Please refer to Annex 38 for details on the significance tests.

The comparison of both tools is also consistent with the findings of van de Ruit and May (2003) comparing the IFPRI/CGAP Poverty Assessment Tool with a participatory wealth ranking on one hand and the nationwide South African Income and Expenditure Survey on the other. As was reported in the section on Measuring Poverty (end of heading starting in page 69) Van de Ruit and May conclude that households in the lower third of the distribution of the IFPRI/CGAP Poverty Assessment Tool are more likely to be classified as poor using the a conventional money-metric measure (based on the national Income and Expenditure Survey) with 60 percent of "USD 1 a day" poor households located in the bottom two deciles of the Poverty Assessment Tool score (2003:31).

Finally, because the analysis of depth of outreach must be performed over the clients that join an MFI as opposed to the whole client base of the MFI, the following page provides the same comparison analysis between the results of the two poverty measures (absolute versus relative as well as multidimensional versus one-dimensional) in order to assess whether both results remain compatible for the category of new clients only.

Table VIII-8: Comparing Poverty Tools for New Clients - % of Wellbeing Groups Below Food Poverty Line

Wellbeing Groups	n (n = 152)	% New Client Households Below AMK Proxy 2006 Food Rural National Poverty Line (R1,550)
TERCILE ANALYSIS		
Poorer	70	**90%**
Medium	53	**66%**
Better-off	29	**55%**
QUARTILE ANALYSIS		
Poorest	42	**93%**
Poor	53	**79%**
Medium	33	**61%**
Better-off	24	**54%**

Table VIII-8 shows that the group of poorer households among the new clients also has the highest percentage of household below the food (rural) poverty line while the better-off group shows the lowest incidence of households with daily consumption below the food (rural) poverty

line. When applying quartile analysis, the group of the poorest client households has the highest percentage of household below the food (rural) poverty line and that this percentage continues decreasing to reach a minimum at the better-off group shows, which shows the lowest incidence of households with daily consumption below the food (rural) poverty line.

Table VIII-9 shows the results when the analysis is reversed: new client households that spend in food consumption less than R1,550 per day are more likely to be classified in the lower and lowest categories of the AMK-PCA Wellbeing Score in both tercile and quartile analysis.

Table VIII-9: Comparing Poverty Tools for New Clients - % of clients below Poverty Lines by Wellbeing Group

Client Households	n (n=152)	Tercile			Quartile			
		Poorer	Medium	Better-off	Poorest	Poor	Medium	Better-off
BELOW AMK Proxy 2006 Food Rural National Poverty Line (R1,550)	114	55%	31%	14%	34%	37%	18%	11%
ABOVE AMK Proxy 2006 Food Rural National Poverty Line (R1,550)	38	18%	47%	34%	8%	29%	34%	29%

As was the case for the total client base of AMK, the significance tests for these comparisons confirm that the differences are statistically significant: Terciles: (Chi-Square (2, N = 152) = 16.75, p = 0.000); Quartiles: (Chi-Square (3, N = 152) = 16.85, p = 0.001). Please refer to Annex 39 for further details on the significance tests.

Therefore, comparing the results for absolute and relative measures of poverty as well as for multidimensional versus one-dimensional poverty measures further confirms the reliability of results with measures being comparable for both the whole client base of AMK as well as the category of new client households.

SUMMARY OF THE THIRD SECTION (EMPIRICAL STUDY)

*The Third Section of this dissertation and discusses the main methodological questions of the empirical study and constructs the poverty and vulnerability measurements. The AMK-PCA Wellbeing score is a **relative** poverty score and measures whether a household is worse off or better off compared to other households. The AMK Daily Food Expenditure figure is an **absolute** poverty measure that is benchmarked against the Cambodian food poverty line for rural areas. On the other hand, the AMK-PCA Wellbeing Score is a **multidimensional** measure of poverty covering expenditures, physical and human assets as well as vulnerability and food security while the daily food expenditure figure **only** measures the **expenditure** dimension.*

The main conclusion of the analysis of both measuring tools is that AMK is reaching a larger share of poorer households than what is found in the general population.

The results of the tercile and quartile analysis of the AMK-PCA Wellbeing Score show that new clients are overrepresented in the poorer (and poorest) category and underrepresented in the richer category, corroborating that joining client households are poorer than nonclient households.

The results of comparing the Daily food Expenditure per capita for AMK clients with the updated food poverty line for rural areas show that, indeed, 75 percent of new clients consumed less than the food poverty line compared with 57 percent of nonclients that consumed less than the food poverty line. These results have to be benchmarked with the national poverty levels in rural areas: 39 percent of the rural population of Cambodia lives below the poverty line but there are great regional variations in poverty levels (and AMK's areas of operation have higher poverty headcount indexes).

Finally, the comparison of the findings of the measuring tools concludes that both tools provide consistent information on AMK's depth of outreach and further confirm the reliability of the results.

SECTION 4 – CONCLUSIONS

Chapter IX – CONCLUSIONS, FUTURE WORK AND POLICY IMPLICATIONS

The objective of this dissertation was to find the best tool for measuring poverty and vulnerability to poverty in microfinance clients and to provide the results for the case of Angkor Mikroheranhvatho (Kampuchea) (AMK), a microfinance institution operating in rural Cambodia. The main underlying hypothesis was that while it is not possible to create a universal poverty measure, it should be possible to create a system that is relevant for households in rural Cambodia.

The study is based on two main premises: that poverty is a multidimensional phenomenon and that examining poverty necessarily implies incorporating the concept of vulnerability to poverty. Vulnerability is understood as the risk of falling into poverty in the future (even if the person is not necessarily poor now) and is used as a shorthand for "vulnerability to poverty" throughout this dissertation. The concept has been included in order to study poverty in a dynamic context (instead of a static one), and because vulnerability is, in itself, an inherently important dimension of wellbeing.

Since it is not possible to find a multidimensional poverty assessment tool that could be comparable across the MFIs'working areas as well as across different MFIs in different countries, this dissertation applies two complementary tools in order to measure poverty and vulnerability to poverty: one indicator that understands poverty as a multidimensional phenomenon and a simplified expenditure indicator that allows comparability by concentrating only on one dimension of poverty: food consumption.

The following pages provide a summary of the main conclusions of this dissertation, laid out in the same order as the paper (theoretical framework, the Cambodian context and the results of the empirical study). The chapter ends with the identification of the agenda for future research as well as the policy implications.

The first section provided an overview of how microfinance programs reach the poor and how to best measure their participation. On theoretical grounds, Chapter I and Chapter II argued that MFIs define a credit contract that reaches the poor by excluding the wealthy and better-off either directly (by not allowing them to be eligible for the program) or indirectly (by charging market-related interest rates that will discourage elites from attempting to capture the loans; by providing loans so small that only the poor will want them; and by adopting requirements that will force the rich to auto-exclude themselves). This theory is supported by empirical evidence, wich shows that MFI clients are clustered around the poverty line. Chapter III explored how to best measure poverty and vulnerability to poverty, dividing the literature review between one-dimensional measures of poverty (monetary and non-monetary) and multidimensional tools (participatory and indicator-based methodologies). Some key examples of poverty assessment tools applied by MFIs were reviewed. Three of the examples were one-dimensional: the ACCION-Income Tool, the expenditures section of the FINCA-FCAT tool and the Housing Indexes. Four examples were multidimensional tools: the CGAP/Grameen/Ford Progress Out of Poverty Index; Participatory Wealth Ranking; Net Worth / Check Lists; and the CGAP/IFPRI Poverty Assessment Tool.

The objective of the literature review was to find a multidimensional poverty assessment tool that could be comparable not only across different locations within the MFI's operating area but ideally also across countries. None of the tools reviewed fit both requirements. Monetary one-dimensional tools are comparable but do not portray the whole picture of poverty. On the other hand, non-monetary one-dimensional tools share the same weakness of the monetary tools, while being less prone to comparisons. Multidimensional tools based on participatory wealth ranking have the advantage of applying different dimensions to poverty, and more importantly, letting people themselves choose how to organize and weight these dimensions, but become impractical for microfinance because they do not allow a simple comparison among different operating areas (that is, the poor in village A may or may not be classified as poor in village B). Of the multidimensional indicator-based methodologies, none are comparable in absolute terms, but at least results can be compared nationally among different operating areas. Of the tools reviewed, those based on a robust methodology were preferred over those that depend on arbitrarily

selected indicators and weights, and those with a proven record in other countries and contexts were preferred over those tools that cannot show much in terms of results yet.

Given the lack of a clear "winner" among indicators, the conclusion of the literature review has been to apply two different poverty assessment tools: a multidimensional relative poverty tool based on Principal Component Analysis (PCA) and an absolute one-dimensional poverty tool based on food expenditure per capita, modifying as necessary in order to fit the rural Cambodian context.

The second section provided an overview of this Cambodian context. Chapter IV discussed the historical context and current economic and sociopolitical environment while Chapter V explored rural finance and the microfinance situation in the country. Chapter VI provided an overview of AMK and its evolution over time from a Concern Worldwide program to a licensed independent Cambodian MFI, precisely as a response to the Cambodian environment and the regulations regarding microfinance services. This information is relevant because AMK has become the case study for the empirical testing of these two poverty tools.

The main conclusion of the second section was that poverty in Cambodia is widespread and very much a rural phenomenon, with more than 84 percent of the population classified as rural and more than 90 percent of the poor living in rural areas.

Microfinance is not a panacea and does not create economic opportunities, but it does provide access to financial services (and more specifically to credit) that allow people to take greater advantage of existing economic opportunities. The other relevant conclusion of the second section was that Cambodia's financial sector is at a rudimentary state: rural households remain underserved by rural finance ant there is high regional disparity in terms of access to microfinance services in rural areas (with the north and north-east of the country and Koh Kong province particularly underserved). The Cambodian micro*finance* sector can be more accurately described as a micro*credit* sector with savings and insurance needs largely underserved. Also, there is little reliable information on cash flows, livelihoods strategies and the sources and uses

of credit but evidence suggests that rural households currently have outstanding debts and likely demand other financial products besides credit.

Currently, the providers of rural finance and microfinance offer mainly credit and are ACLEDA Bank; licensed and registered microfinance operators; and the informal financial sector. Within those, the top-nine microfinance operators are one commercial bank and eight licensed MFIs. The commercial bank is ACLEDA Bank, albeit limited to its Micro and Small Loan portfolio. The eight licensed MFIs are: PRASAC; AMRET; CEB; TPC; VisionFund; Hattha Kaksekar; AMK; and CREDIT. Together these top-nine microfinance operators capture 93 percent of all outstanding loans and serve 94 percent of the clients. In terms of loan portfolio and deposits, ACLEDA is the clear market leader; however in terms of clients served, AMRET is slowly surpassing the hegemony of ACLEDA Bank for (small and micro) borrowers.

The analysis of the evolution of all microfinance providers reporting to the NBC from 2000 to 2006 concluded that the Cambodian microfinance sector appears to be splitting into two groups:

(i) the MFIs maintaining a focus on small-balance loans and outreach, composed mainly by AMK, TPC and AMRET and, to a lesser extent, by VisionFund and PRASAC.

(ii) the MFIs working with a mixed product offering of micro- and SME-loans, composed by CEB, ACLEDA Bank, Hattha Kaksekar and CREDIT.

The seven-year analysis further suggested that microentrepreneurs (and small enterprises) have benefited more than rural households from the increase in loans available to rural areas and that new entrants into the formal banking system also tend to focus more on microentrepreneurs and small enterprises.

The last part of the section provided an overview of the financial and operational highlights of AMK and concluded that the transition from a program established by an international non-governmental organization (Concern Worldwide) into a Cambodian independent microfinance institution can be classified as a success. A review of the products and services, methodologies and geographic coverage further confirmed that AMK concentrates on reaching poorer and rural populations. In comparative terms, AMK has maintained below-market average loan sizes and it

is the fastest growing microfinance operator in terms of outreach: moving from 5 percent of the market in 2000 to 11 percent in 2006. Currently it is the fourth microfinance institution in terms of borrowers and it is growing at the highest rate per year (34 percent on average).

AMK seems well ahead in the road towards financial sustainability, with figures of Operational Self-Sufficiency (OSS) above 100% and positive Return on Assets (RoA) figures. However, complete success for microfinance institutions calls for a balance between social and financial performance. AMK's current institutional structures seem geared towards this end with a market and social research function at the management level and a pioneering system of social and audit committees reporting to the Board of Directors. The information provided on client and village profiles (Chapter VI) also seem to corroborate this image of AMK reaching poorer clients by working in poorer areas, but confirmation can only be provided by the analysis of the empirical study discussed in the Third Section (Chapters VII and VIII).

The third section discussed the summary of the empirical study undertaken in AMK as well as the highlights of the results. Chapter VII provided an overview of the methodology applied for both poverty assessment tools. This included details on the sample size, its representativeness and other selection issues as well as the survey tool applied and how it evolved over time in order to match the specificities of rural Cambodia. A brief cross-check was then performed with the demographics of the sample and the characteristics found in national studies. The result of this benchmark analysis was that the characteristics of AMK clients (and villages) are similar to the characteristics of rural households found by other studies, albeit client households seem to tend toward the poorer segments of the rural population.

Two different (but complementary) poverty assessment tools were then constructed. First, the relative measure of poverty, the AMK-PCA Wellbeing Score, including all the statistical steps and the reasons behind all choices taken in order to reach the best-fit model for assessing the multidimensionality of poverty and vulnerability in rural Cambodia. Secondly, the absolute measure of poverty, the Daily Food Expenditure measure was constructed, detailing the calculations undertaken to reach a monetary per capita figure as well as the assumptions and indexes applied in order to update the food poverty line that served as a benchmark.

Chapter VIII summarized the results of both relative and absolute measures of poverty, detailing what can be implied or ascertained from the findings and comparing the results of both types of tools for clients, corroborating that both provide consistent information on the depth of outreach of AMK.

The AMK-PCA Wellbeing Score calibrates relative poverty and thus, measures the extent to which a household is worse off or better off compared to other households sampled. When tercile analysis was performed on the AMK-PCA Wellbeing Score, the main conclusion was that AMK is, indeed, reaching poor clients because the distribution is skewed: clients are overrepresented within the poorest tercile and underrepresented in the highest tercile (i.e. reaching a larger share of the poorer households than is found in the general population). When quartile analysis was performed on the AMK-PCA Wellbeing Score, the same conclusion held true: AMK is reaching poor clients because clients remain underrepresented in the better-off category and overrepresented in the poor category and nearly equivalent in the poorest category.

However, a proper analysis of the depth of outreach of microfinance institutions should be further restricted to newly-joining clients as opposed to the current clients. This is because the current poverty status of an existing client may not be the same at the time of joining, presumably (among other things) because access to microfinance services should have helped these client households. Thus, a seniority analysis has been performed dividing the AMK client group into new clients, beginners and senior clients. New client households are those that have been clients for less than one year. Beginner client households are those that have been clients for at least one year but less than two years. Senior client households are those that have been borrowing for two years or longer. Note, however, that this senior household category is only relevant for Banteay Meanchey, Kampong Speu and Pursat branches and that in Battambang and Siem Reap all client households sampled are classified as new clients (there is no beginner client category in provinces that started operations in 2005 as the cut-off date for the sample was December 2005).

The results of this seniority analysis further corroborated the previous findings: when three wellbeing groups are analyzed, new clients are overrepresented in the poorer category and

underrepresented in the richer category; when four wellbeing groups are applied to the analysis new clients are again overrepresented in the poorest category.

Finally, in order to estimate absolute levels of poverty (i.e. to assess the actual level of deprivation of the poorer category of households or the level of affluence of the better-off), this dissertation compared the Daily Food Expenditure per capita with the Cambodian Food Poverty Line in rural areas and concluded that 75 percent of AMK clients consumed less than the updated Cambodian (rural) Food Poverty Line (KHR 1,550) while 57 percent of nonclients consumed less than this benchmark. Furthermore, restricting the analysis only to joining clients: 75 percent of new clients consumed less than the food poverty line, compared with the 57 percent of nonclients who consumed less than the food poverty line. Thus, AMK's performance regarding depth of poverty outreach is well above the level of poverty generally found in rural areas also when applying a monetary one-dimensional poverty measurement tool.

As was discussed in Chapter III – Measurement of Poverty and Vulnerability, one-dimensional measures of poverty (particularly the monetary ones) are useful for benchmarking, but do not provide a holistic view of poverty because they concentrate on a single dimension as opposed to all areas of poverty and wellbeing. The AMK-PCA Wellbeing Score is the response to this gap: while it is a relative measure of poverty and thus not easily comparable with other national or international figures, it provides very relevant information on poverty, when understood as a multidimensional concept (including vulnerability to poverty).

In addition, both measurement tools (the AMK-PCA Wellbeing Score as well as the AMK Daily Food Consumption below the Food (rural) Poverty Line) have been adapted to incorporate the main conclusions of the literature review of the first section as well as the context of rural Cambodia explored in the second section. While the specific details of these adaptations are detailed and interspersed throughout the text of this dissertation, the following paragraphs provide a succinct summary of some of the main examples of how these main conclusions or highlights have been incorporated.

In the design of the AMK-PCA Wellbeing Score, indicators were included which have been linked not only to poverty but also to the concept of vulnerability to poverty. Vulnerability has been included in the AMK-PCA Wellbeing Score by incorporating those indicators that are generally found in the general literature on vulnerability as well as those found relevant by recent qualitative and quantitative studies of poverty and poverty profiles in Cambodia. Also, in search for a multidimensional score that would best reflect Cambodia's rural realities, the PCA score was tested using two benchmarks: Clothing and Footwear per capita and Food Security. While Clothing and Footwear per capita has produced the best results in other geographical contexts and studies, in the case of rural Cambodia a preference was given to applying Food Security as a benchmark because it was consistent with the vulnerability profile of rural households in Cambodia and because it also covered two key dimensions of poverty and vulnerability (namely education and health) that were not covered when the score was constructed using Clothing and Footwear as a benchmark.

In the design of AMK's Daily Food Consumption, an explicit module was created for monetizing the value of production that is consumed within the households. This module is also linked to the particularities of Cambodian rural households, as was discussed in the design phase of the survey tool. For instance, the survey asks for a yearly estimation of rice consumption, as opposed to the standard practice of asking for weekly or monthly estimates.

The main highlights of the review of literature on poverty and vulnerability measurement, as well as the specific findings of recent poverty profiles of rural Cambodia, not only contributed to the design of the survey tools (i.e. the questions) and the measuring tools (i.e. the indicators) which were explored in detail in Chapter VII, but have also been incorporated into the analyses of results. For instance, both tercile and quartile analysis is performed routinely in all outputs presented precisely because participatory studies of rural households have found evidence of households self-selecting themselves equally into both types of categores; some villages chose only three wellbeing categories and some villages chose four wellbeing categories, with no category being more prominent among the sample.

Another example of how the findings of the literature review have been applied is the use of the word "wellbeing" instead of "poverty" when naming the AMK-PCA Score. The AMK-PCA Wellbeing Score (as opposed to the AMK-PCA Poverty Score) attempts to concentrate on what rural households *have*, as opposed to what they lack, and has been inspired by Moser's work on asset management and vulnerability issues, as was discussed in Chapter III.

The comparison of the results of both measuring tools has further confirmed the reliability of results, with the group of poorer (and poorest) client households showing the highest percentage of households below the food (rural) poverty line. At the same time, the client households with Daily Food Consumption below the food (rural) poverty line were more likely to be classified in the lower and lowest categories of the AMK-PCA Wellbeing Score.

Therefore, the main conclusion of this dissertation is that poverty and vulnerability to poverty can be assessed in microfinance clients by applying two different but complementary measuring tools: a wellbeing score based on a robust methodology to incorporate the multidimensionality of poverty and, simultaneously, a simplified and easily comparable expenditure indicator that concentrates solely on food consumption. Both are the result of a combined research effort and have been adjusted to the specific characteristics of rural Cambodia: in the case of the wellbeing score the benchmark chosen was food security; and in the case of the daily per capita expenditure, care was taken in monetizing the value of production that is consumed within the households (including rice). To my knowledge, of the different poverty assessment tools applied by microfinance operators, food security has not been applied before as a poverty benchmark for the statistical steps of PCA and no assessment has been previously performed applying a Daily Food Expenditure per capita that monetizes food produced and consumed within the household. Other contributions of this dissertation include the up-to-date analysis of microfinance and rural finance in Cambodia and the summary of the state of social performance within the recent changes in the microfinance industry.

The agenda for future research would include the analysis of impact or transformation effects on households. It is envisioned that these same depth of poverty measures will allow robust conclusions when the longitudinal comparison of AMK-PCA Wellbeing Scores (and number of

households below rural Cambodia's Food Poverty Line) is undertaken during 2008. That remains as future work. The assumption is that the study of the changes in wellbeing scores over time in the same households will allow some conclusions to be drawn about the impact of access to microfinance services compared with the evolution observed in nonclient households. The crux of the matter in impact analysis is the attribution of the effects at the household level to access to credit. The possibility to assign attribution will depend on the behavior of the client and control group in the repeat interviews, i.e. on how many of the clients and nonclients interviewed previously will be available for another interview for the impact assessment and if the sample (and its distribution) is representative enough to reach robust conclusions. The timing of benefits will also need to be assessed as only short and medium term benefits, such as increase in nutrition or consumption, can be assessed after one or two years of access to finance. It will take a much longer assessment period to gauge long-term potential effects, such as substantial changes in their asset base or improved education opportunities for their children. It would be also be quite interesting to test the conclusions of other impact studies. Given the high number of AMK clients that can be classified as poor at the time of joining, it would be particularly interesting to establish whether AMK's future impact assessment is consistent with the finding that the poor (and the very poor) benefit mainly from access to microfinance because of consumption smoothing (by borrowing) or because of improved asset management (particularly of their savings) while clients above the poverty line seem to benefit largely because of productive uses of their loans. In other words, does access to finance help the very poor by providing some sort of insurance or decreasing their vulnerability, while helping the not-so poor by providing investment opportunities? If the future AMK impact study can provide quantitative evidence of such a finding, the most interesting analysis would certainly be its policy implications because it may corroborate the hypothesis that access to financial services may improve the welfare of the very poor but cannot by itself lift them out of poverty.

Regarding policy implications, Meyer and Zeller (2002) in their analysis of the "triangle of microfinance" argue that the lack of rigorous techniques for measuring depth of outreach has resulted in very limited quantitative knowledge about the trade-offs between outreach, impact and financial sustainability. Incidentaly, the concept of cost-effectiveness becomes crucial. Armendáriz de Aghion and Morduch (2005) argued that even if a "perfect" positive net impact

evaluation were to be available, it would not necessarily translate instantly into overall success for a microfinance institution because cost-effectiveness matters as well and microfinance should be judged against the costs and benefits of alternative approaches, including other ways of doing microfinance. As Sharma and Buchenrieder (2002) point out, the challenge remains in reducing the costs of providing financial services to the poor – and, whatever the current size of impact, any further improvement in the benefit per dollar invested depends on cost-saving innovations. Indeed, only those institutions (and their shareholders) that rely on robust quantitative methodologies will be able to assess whether they are meeting their goals regarding *both* their financial performance as well as their outreach objectives. In turn, only those insititutions with robust methodologies in place will be able to properly assess if the cost-saving innovations they envision for their future long-term strategies are working more towards the concept of synergies or more towards the concept of trade-offs between financial and social performance.

While information on impact is not yet available, this dissertation has been able to show that in the case study of AMK, synergy (as opposed to trade-off) is the operative word to describe the relations between financial sustainability and depth of outreach. In AMK's case, financial sustainability and depth of poverty outreach have happened simultaneously. The comparison of operational and financial data from 2003 and 2006 has allowed an assessment of AMK's financial performance. The analysis of the multidimensional and the monetary measuring tools have also allowed an assessment of the depth of poverty outreach. Both have gone hand in hand, and indeed, data so far does not suggest trade-offs between them but rather synergies. AMK (2007b), Chetan (2007) and Torres et al. (2007) further corroborate this concept of synergy and the balance between AMK's social and financial performance.

In that regard, it is hoped that this dissertation has been able to contribute to increasing the quantitative knowledge about synergies between outreach and financial sustainability and that the on-going work of the AMK management team (along with the research department) will provide further information to assess synergies between impact, outreach and financial sustainability.

ANNEXES

Annex 1: Summary of Products and Clientele in Individual and Group Lending

INDIVIDUAL LENDING

Product	Appropriate Clientele
Loan sizes: US$100-3,000. Terms: 6 months to 5 years. Collateral is required (although flexibility is introduced, e.g. co-signers, character references, consumer goods, etc.) Interest rates: higher than formal sector but lower than informal sector loans. Mandatory savings might or not be required. Training and technical assistance might be provided (sometimes training is mandatory or provided on a per-fee-basis).	Clients are most likely urban enterprises or small farmers (men and women) and may be medium-income small business, microbusiness and production enterprises.

SOLIDARITY GROUP LENDING

	Product	Appropriate Clientele
GRAMEEN	Loan sizes: US$100-300. Terms: 6 months to 1 year and payments are made weekly. Interest rates: 20 per cent a year. Savings are compulsory (pre-qualifying for the loan and during the loan term). Pre-credit orientation is provided but there is minimal technical assistance. Tests are performed to assure outreach to the very poor.	From rural or urban (densely populated) areas and are usually (but not exclusively) women from low-income groups pursuing income generating activities.
ACCION	Loan sizes: Initial loan amounts are US$100-200 and short-term (<1year). Subsequent loans have no upper limit. Payment are made weekly at the program office. Interest rates are often high (service fees are also charged). Mandatory savings are often required (often deducted from the loan amount at the time of disbursement rather than requiring clients to save prior to receiving a loan). Very few voluntary savings are offered. Incorporates minimal technical assistance (training and organization building).	Mostly urban (men and women) who have small to medium incomes (microbusiness, merchants and traders) and working capital needs.
Village Banking	Initial loans are usually short term (4 to 6 months) and small (US$50), to be repaid in weekly installments. Loans have commercial rates (1 to 3 % per month) and higher interest rates if they are from the internal account. The amount of the second loan is determined by the accumulated savings of each member during the first period. Some banks also provide education about agricultural innovations, nutrition and health.	Usually from rural or sparsely populated but sufficiently cohesive areas. They have very low incomes but savings capacity and are predominantly women (although it is also adequate for men and mixed groups)
Savings & Loan	Products include savings, current accounts and term deposits. Loans are short-term, working capital loans (there is no direct link between loans and accumulated savings amounts). Interest rates are set by each village (the more remote the area the higher the interest rate tends to be). Loans are paid in one installment. Management committees, managers and members all receive extensive training. Some programs also provide technical assistance to start-up microentrepreneurs.	Mostly from rural areas and include both men and women with low to medium incomes and some savings capacity.

(Compiled from Ledgerwood, 1999)

Annex 2: Measuring Sustainability (OSS, FSS, ROA, ROE)[252]

The ratio for Operational Self-Sufficiency (OSS) is calculated as follows:

$$\frac{\text{Operating income}}{\text{Operating expense (including provision for loan losses)}}$$

While loan loss provision is an accounting feature (recorded as an expense in the income statement) that estimates future loan losses, the loan loss reserve is the cumulative amount of loan loss provisions

The adjusted cost of capital is the cost of maintaining value of equity relative to inflation (the market rate of equity) and the costs of accessing commercial rate liabilities (the market rate of liabilities).

The ratio for Financial Self-Sufficiency (FSS) is calculated as follows:

$$\frac{\text{Adjusted operating income}}{\text{Adjusted operating expense}}$$

While adjusted operating income is equivalent to net income, adjusted operating expense includes: operating costs + financial costs + provision for loan losses + imputed costs of capital (including inflation).

Sustainability can also be measured through the Return on Assets or Equity (ROA or ROE). The Return on Assets (ROA) ratio measures the net income earned on the assets of a MFI while Return on Equity (ROE) ratio provides management and investors with the rate of return earned on the invested equity. The ROA measures how well the assets in which the MFI has invested have been able to generate profit. In contrasts, ROE measures the return on funds that are owned by the MFI rather than the total assets (which by definition includes both liabilities and equity). Both ROA and ROE are important measures because they provide indications of the rate of return of the MFI. In turn, positive rates of return would allow MFIs to access commercial funds. When calculating the ratios, adjusted ratios are preferred. Adjusted ratios mainly mean that the figures have been adjusted for both subsidies and inflation.

The Adjusted Return on Assets (AROA) ratio is calculated as follows:

$$\frac{\text{Adjusted net operating income}}{\text{Average total assets}}$$

The Adjusted Return on Equity (AROE) ratio is calculated as follows:

$$\frac{\text{Adjusted net operating income}}{\text{Average total equity}}$$

[252] Compiled from Ledgerwood (1999)

Annex 3: ACCION Social Scorecard

ACCION Social Scorecard is a poverty outreach report that disaggregates commonly used indicators by the poverty levels of the clients. ACCION affiliates should incorporate this report as part of a regular report in their Management Information Systems. The Social Score card reporting format is intended to be part of the data reported regularly by the management to the Board of Directors and eventually is expected that management will set targets for the levels of these indicators in strategic and business plan exercises (Biggar and Reddy, 2006:37).

ACCION Social Scorecard Model

Statistics by Poverty Level	% of clients	% of loan portfolio	% of female clients	Average household income	Disbursement Amount	Portfolio in Arrears (>30 days)	% of solidarity groups
Poor *<poverty line*	55%	38%	78	$615	$758	12.5%	46%
Vulnerable non-poor *100-150% of the poverty line*	21%	24%	76	$922	$1175	13.5%	33%
Non-Poor *>150% of the poverty line*	23%	38%	71	$1,744	$1592	12.1%	24%

Source: Dewez et al (2006:12) based on the Model prepared by ACCION International using the database of Apoyo Integral as of October 2005

The accuracy of the scorecard was tested using the expenditure data from the more detailed household surveys for 4 affiliates: BancoSol, Mibanco, Sogesol and Apoyo Integral.[253] The findings show that between 42% to 60% of the microfinance clients were categorized in the same poverty level for the household survey and the loan evaluation data. ACCION concluded that "since approximately half of the clients in the sample are sorted into the correct poverty level, using credit evaluation data in a social scorecard format provides the MFIs with practical, low cost tool to regularly monitor the poverty levels of clients" (Bigger and Reddy, 2006:39).

In the most recent accuracy report in Apoyo Integral, the level of accuracy was only 42%. While in the latest report they acknowledge that "this level of accuracy is not ideal" the authors reiterate that the tool does not impose additional data collection costs on Apoyo Integral and that its level of accuracy is comparable to Prizma's poverty scorecard so that they conclude again that "using the credit evaluation data to create a Social Scorecard provides Integral with a practical, low-cost tool for regular poverty monitoring" (Dewez et al 2006:13).

[253] Accuracy tests range from 42% in Apoyo Integral, El Salvador; 45% in BancoSol, Bolivia; 36% in Mibanco, Peru and 60% in Sogesol, Haiti.

Annex 4: FINCA FCAT

Section of the FCAT questionnaire covering Household Expenditures

The following pages cover questions 36 to 46 of the FINCA-FCAT survey, which seeks to achieve the final Daily Per-Capita Expenditures (DPCE) figure.

ESTIMATED HOUSEHOLD EXPENDITURES

36	37	38	39	40	41	42	43	44	45	46
Food	School	Health	Home	Utilities	Fuel	Transp.	Clothing	Savings	Other	Total

36-46—Estimated Monthly Household Expenditures: This whole section of ten expenditure categories is provided to facilitate the calculation of one variable—Monthly Total (Expenditures)—as a proxy for Total Family Income (35). Such a calculation becomes an easier "second opinion" when the respondent (usually a woman) has insufficient capacity, control, or knowledge to estimate income earned by male adults in her household. What she is most likely to know is the amount of income she has earned, and/or what male household members have given her to meet household expenditures—i.e., *funds that she has personally managed*. The way to ask this question is to first ask for a total estimate (48): "How much do you spend each month to support your family?" Next, to validate the answer (if necessary), use items 36-45 as a worksheet, with each expenditure type becoming a prompt which collectively adds up to produce a new, more accurate total (46). It may be easier for the respondent to give weekly estimates. If so, these need to be multiplied by 4 to get a monthly figure

36. Food: Ask: "What do you normally spend each week for food to support your household?" Only include food purchases in cash, not home-grown food. Next, take this answer and multiply by four to get a monthly estimate. Be attentive to the possibility that the respondent may have already estimated home-grown food in question 34 above.

37. School: Ask: "What do you normally spend each week for the education of children in your household?" Next, take the answer and multiply by four to get a monthly estimate. Be attentive to the possibility that the respondent may have already estimated educational expenses in question 29 above.

38. Health: Ask: "What do you normally spend each week for medicine and medical services to support your own health and that of other household members? Here there are two possible situations. The first is that the respondent will reply that there have been no health-related costs because nobody in the household has been sick recently. The second situation is that the respondent will readily report a given amount for health expenditures—either because (a) someone was recently sick or (b) because someone is always or predictably sick—i.e., *they suffer from a chronic illness*. In this second case it is useful to ask the following prompts: (1) Have you had to recently hospitalize a member of your family? (2) Does your household have a chronically ill member? (3) If so, what is their illness? And (3) –especially for interviewers in Africa—Does the chronically ill member suffer from HIV/AIDS? In any event, for special cases of a *non-*

chronic illness or hospitalization, take the estimated cost of hospitalization or treating the patient and divide by 12 months to get a monthly estimate of health costs. For the family with the chronically-ill patient, apply the estimated weekly cost of medicine and medical services to treat that patient, then multiply by four to get the monthly cost.

39. Home: Ask: "Do you rent or own your home or live in a relative's home?" What does your household spend each month to rent (or for house payments)?"

40. Utilities: Ask: "During a normal month, what does your household pay each month for utilities—for electricity, water, sanitation, telephone, heat, etc.?" These costs normally include monthly payments for electricity, water, sanitation, telephone, and in some cases (especially NIS clients) heating and cooking-fuel costs.

41. Fuel: Ask: "During a normal month, what does your household spend for cooking fuel (if not included in utilities)? In cold-climates this item will refer exclusively to fuel for heating and cooking. In tropical climates this item will refer to cooking fuel only. If wood is used, the respondent might be asked: "What do you spend each week on firewood?", then multiply the answer by four. If gas is used, a single propane tank could last 2-4 weeks. So the prompt questions need to focus on what fuel is used, what is the standard purchase unit, and how many units would be consumed in an average month.

42. Transportation: Ask: "What do you normally spend each week on transportation expenses?" Prompts might include: (a) To get your children to and from school, (b) to go to and from your work, and (c) travel to purchase supplies for your business?". Multiply by four to get a monthly average.

43. Clothing: Ask: "Normally how often does your family buy clothes?" During a normal month (or year), how much do you spend for this purpose?" If not a monthly estimate, take the annual cost and divide by 12. In cold weather climates clothing expenses (especially boots and jackets) tend to far exceed the clothing demands of households in the tropics.

44. Savings: Ask: "During a normal week (or month), how much do you (and other members of your household) set aside for savings?" Each FINCA loan installment payment includes principal, interest, and savings. FINCA clients are therefore very conscious of what they are saving for each weekly, biweekly, or monthly payment. If weekly, multiply by four, if bi-weekly multiply by 2, etc.

45. Other: Ask: "Do you have any other major expenses we haven't covered? For example, a wedding, funeral, birthday, entertainment, bribes or taxes, donations to your church, payment of debts, etc." If an annual cost divide by12 to create a monthly estimate.

46. Total Monthly Household Expenditures: Total sums 36-45. This amount will be subsequently divided by 30 days to reach a *daily* household expenditure, then divided again by total household members (24) to obtain ***daily per-capita expenditures (DPCE).*** This figure is then compared with *daily per-capita income (DPCI)* to determine which of the estimates represents a more accurate estimate of household income.

Previous section of the FCAT questionnaire estimating Monthly Household Expenditures

The following are examples suggested in earlier drafts of the methodology (2002) as prompting questions in order to estimate the average daily expenditures:

1. To support your family, how much do you normally spend each on family necessities – on food, healthcare, education, housing, transportation and so on?
2. For example, how much did you spend *yesterday*?
3. Do you spend much more on some days than in others?
4. If so, on what days do you spend more? How much?
5. On what days do you spend less? How much?
6. So in a *normal week* you would spend about how much?
7. Do you have more to spend at certain seasons of the year and not others?
8. If so, is this a high season for you or a low one?

With prompts as these the interviewer can either:
(1) construct and *average daily expenditure*, then multiply by 30 days to reach a monthly expenditure estimate or
(2) construct and a*verage weekly expenditure* and multiply by 4 to get a monthly expenditure estimate.

Prompts 3, 4 and 5 help the interviewer to correct *yesterday's* estimate upward or downward. Prompts 6 and 7 help to adjust the *normal week* estimate.

Section of the FCAT questionnaire covering SOCIAL METRICS

The following pages cover questions 64 to 69 of the FINCA-FCAT survey, in order to achieve the total Social Score figure.

SOCIAL METRICS

64	65	66		67	68			69		70
Food Security	Education	Housing		Health	Empower-Ment			Social Capital		Total (65-70)
		U	I		R	P	O	F	I	

Overview of Social Metrics: The purpose of these questions is to measure to what extent participation in a FINCA microcredit program has resulted in gains in family well-being. The social metric categories used in this questionnaire share a common architecture. This is because each question provides the respondent with a choice of four different scenarios, with the respondent's task being to select the scenario that best fits the reality of her family. As shown below, while the scenario "script" varies by question, the four options generally reflect the same type of outcomes—namely, with outcome 1 = "excellent" or *always*; outcome 2 = "good" or *sometimes*; outcome 3 = "fair" or *seldom;* and outcome 4 = "poor" or *never*.

64: Food Security: Ask: “Which of the following statements best describes the food eaten in your household?” (1) We can always afford enough of the food we need to eat; (2) We can usually afford the food we need to eat; (3) We sometimes do not have enough to eat; (4) We almost never have enough to eat.”

65. Education: Ask: “Which of the following statements best describes the situation regarding the education of children in your household?” (1) We can afford to keep all our school-age children in school—at least through secondary, vocational school, and even the university; (2) We can afford for our children to complete primary and secondary, but not all of them will complete vocational or university educations; (3) we can only afford for all of our children to complete primary education, but secondary schooling is doubtful; and (4) we can not afford for all our children to obtain even a primary education.”

66. Housing: Ask: “Which of the following statements best describes your housing situation? (1) Our house has full utilities (electricity, water, sanitation) and we can always afford needed repairs; (2) Our house has partial utilities and we can sometimes afford repairs; (3) Our house has electricity only and we can seldom afford repairs; (4) Our house has no utilities and we can never afford repairs.”

67. Health: Ask: “Which of the following statements best describes the health situation of your household.” (1) We can always afford the medicine and healthcare services we need; (2) We usually can afford the medicine and healthcare we need; (3) We sometimes can not afford to buy medicine or healthcare services; and (4) We never can afford to buy medicine or healthcare services.”

68. Empowerment: This variable has been broken down into three categories: Feeling respected (R), participating in decision-making (P), and stating my opinion in public (O). Each category is scored always (1), sometimes (2), seldom (3), and never (4). These are then used to create a composite score based on the following scenarios. The respondent is asked: “Which of the following statements best describes your own situation?” (1) I always feel respected, often express my opinions in public, and participate in all major decisions of my family; (2) I sometimes feel respected, sometimes express my opinions in public, and participate in some of the major decisions of my family; (3) I seldom feel respected, seldom express my opinions in public, and seldom participate in major family decisions; (4) I never \feel respected, never express my opinions in public, and never participate in major family decisions.”

69. Social Capital: This variable is broken down into two variables—a network of friends I can depend on (F) and involvement in the community (I). Each category is scored many (1), some (2), few (3), or none (4) These scores are then used to create a composite score based on the following scenarios. The respondent is asked: “Which of the following statements best describes your own situation?” (1) I have many friends and I’m very involved in community activities; (2) I have some friends and am somewhat active in my community; (3) I have a few friends and I’m rarely involved in community activities; and (4) I have no friends and I never get involved in community activities.”

70. Total Social Score: If all six social metrics are used, the highest aggregate score for a single respondent would be 24 (indicating the worst status) and the lowest would be six (indicating the highest status). This would allow us to test a working hypothesis that the higher the social metrics score the poorer the household, as follows:

A household is…	If its total social metrics score is:
Severely or absolutely poor	18-24 points
Moderately poor	12-17 points
Above the poverty line	6 to 11 points

Annex 5: Classification of the CASHPOR House Index (CHI)

CASHPOR House Index		**Adaptation to South India**		**Adaptation to China**	
Size of the house:		**Size of the house:**		**Size of the house:**	
Category	Point	Category	Point	Category	Point
Small	0	Small <20 sq. meters	0	Small	0
Medium	2	Medium 20-29 sq. meters	2	Medium	2
Big	6	Big >29sq. meters	4	Big	4
Structural condition:				**Structural condition:**	
Category	Point			Category	Point
Dilapidate	0			Dilapidated	0
Average	2			Average	2
Good	6			Good	6
Quality of walls:		**Height and materials of walls:**		**Quality of walls:**	
Category	Point	Category	Point	Category	Point
Poor	0	<4 feet mud	0	Poor	0
Average	2	4 feet mud	2	Average	2
Good	6	>5 feet mud	6	Good	6
Quality of roof:		**Quality of roof:**		**Quality of roof:**	
Category	Point	Category	Point	Category	Point
Thatch/Leaves	0	Thatch/Leaves	0	None/Mud	0
Tin/Iron sheets	2	Tin/Iron sheets	2	Partial stone	2
Permanent roof	6	Tiles and other good materials	6	Cement/Concrete	6

Source: Simanowitz et al. (2000)

Annex 6: CGAP-Grameen-Ford Progress out of Poverty Index (PPI)

The following tables present examples of the Progress out of Poverty Index (or the original Poverty Score Card) for the Philippines, Mexico and South Africa. The last table of South Africa also includes the specific index values for the MFI Small Enterprise Foundation (SEF) as of July 2007.

Table 2. Poverty Scorecard for the Philippines

Indicator	Points	Actual score
1. What are the house's outer walls made of?		
Light materials (*cogon*, bamboo, *sawali*, *nipa*)	0	
Strong materials (aluminum, brick, wood, asbestos)	10	
2. What kind of toilet does the household have?		
Not water sealed	0	
Water sealed	7	
3. Does the household own a gas stove?		
No	0	
Yes	21	
4. Do all children ages 6–17 go to school?		
No	0	
Yes	9	
No children	26	
5. How many TVs does the household own?		
None	0	
One	17	
Two or more	36	

Source: Hashemi and Foose (2007)

Mexico Progress Out of Poverty Index :
Ten Indicators

	Indicator	Attributes					Points
1	Does the house have a shower?				No 0	Yes 5	
2	How many household members are from 0 to 17 years old?	Four or More 0	Three 7	Two 12	One 18	Zero 28	
3	Household has fixed telephone line or cellular?				No 0	Yes 7	
4	Household has a car, truck, small truck, etc?				No 0	Yes 8	
5	How many household members are wage earning employees?			Zero 0	One 2	Two ore more 7	
6	Highest degree of study of the female head of households/wife?			Up to 6th grade of Primary school 0	Up to 6th semester or 3rd year of Vocational school 4	7th semester of High School or more 16	
7	In the past month, has the household purchased fabric softener?				No 0	Yes 5	
8	In the past 3 months, has clothing been purchased for household members of 17 years of age or more?				No 0	Yes 6	
9	Of what material are the floors of the house constructed primarily?			Earth 0	Cement 7	Wood or Tile 11	
10	In the past week, did any household member eat in a cafeteria, taco shop, etc?				No 0	Yes 7	

Source Biggar (2006)

PPI Example - from SEF - Jul-07

* Affirmative answers are highlighted in red

	Indicator	Value	Points
1	What is the main source of energy/fuel for this household?	Wood, coal, dung, solar, other, none	0
		Gas, paraffin, electricity from generator	**14**
		Electricity from mains	20
2	Does your household own a motor vehicle?	No	**0**
		Yes	15
3	What is the main source of income for this household?	Remittances, pensions and grants, sales of farm products and services, other non-farm income, other, no income	**0**
		Salaries and/or wages	21
4	What type of toilet facility is available for this household?	Other	**0**
		Flush toilet	12
5	Does your household own a VCR?	No	**0**
		Yes	8
6	Does your household own a microwave?	No	**0**
		Yes	6
7	Does your household own a washing machine?	No	**0**
		Yes	6
8	What is the main material used for the walls of the main dwelling?	Other	0
		Cement block/concrete, corrugated iron/zinc, wood	3
		Bricks	**5**
9	Does your household own a landline telephone?	No	**0**
		Yes	4
10	What is the household's main source of water?	Other	**0**
		Piped (tap) water on site or in yard	1
		Piped (tap) water in dwelling	3

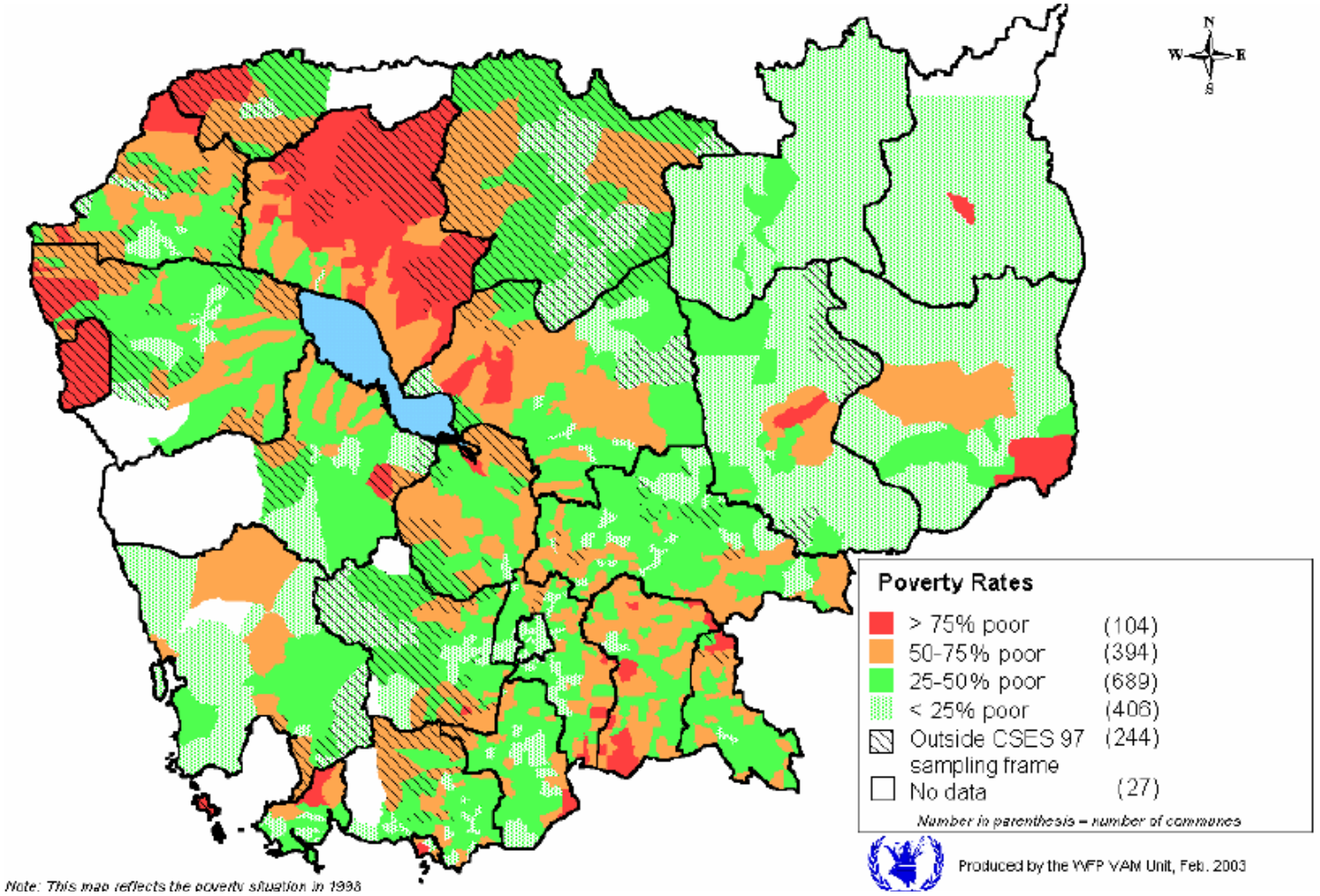
Source: CGAP (2007)
http://cgap.org/portal/binary/com.epicentric.contentmanagement.servlet.ContentDeliveryServlet/PORTFOLIO/docs/SEF_PPI_Example.xls

Annex 7: Cambodia Fact Sheet

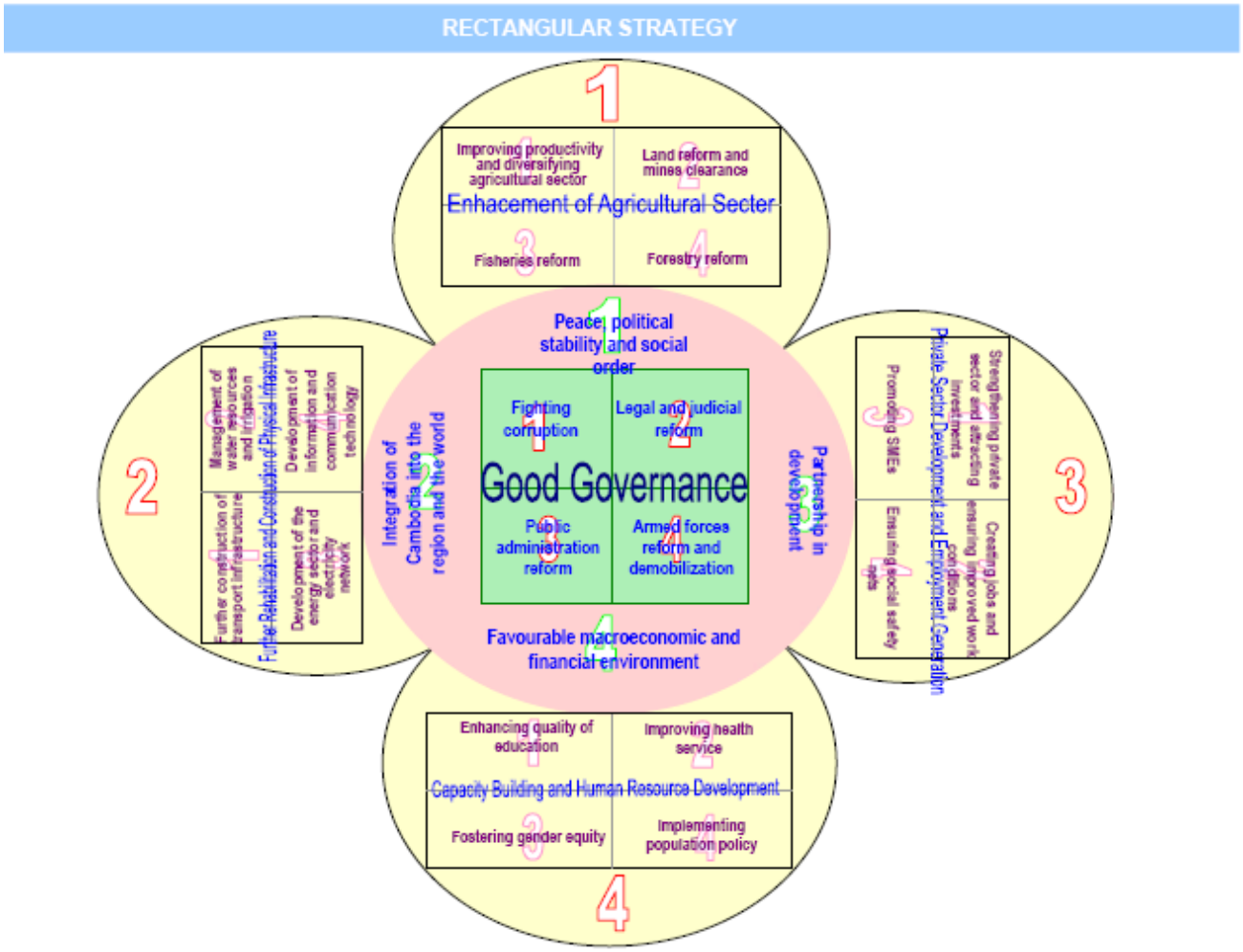
Key Facts (a of 2007)	Cambodia
Official name	Kingdom of Cambodia
Capital	Phnom Penh
Area (Km^2)	181,035
Roads (2005)	40,000 Km: Paved and unpaved roads 4,802 Km: Primary and secondary national roads 6,705 Km: Provincial roads 28,000 Km: Tertiary or rural roads Paved roads: 16% of total roads (2000)
Population density (per km^2, 2006)	82
Population (millions, 2006)	14.4
Population under 15 years old (as % of total, 2004)	38%
Population under 25 years old (as % of total, 2004)	60%
Annual population growth rate (%, 1975-2004)	2.3%
Fertility rate (per woman 2000-2005)	4.1
Rural population (as % of total-2004):	81%
Gross Domestic Product (GDP) PPP per capita (2006)	US$ 2,920
Gross national income (per capita-2006)	US$480
GDP per capita annual growth rate (%, 1990-2005)	5.5%
Real GDP Growth (2006)	10.5% (5.4 in 2000)
Structure of GDP (%- 2005)	
□ Agriculture □ Industry □ Services	34% 27% 39%
Population below national poverty line (%)	47% (1994) 35% (2004)
Life expectancy at birth:	42 (1960), 56 (2000), 57 (2004), 59 (2006)
Mortality rate under 5 years old (per 1,000)	- (1960), 135 (2000), 141 (2004), 82 (2006)
Underweight children under age-five (% -1996-2004)	45
Undernourished people (% of total population)	33% (2001-03), 43% (1990-92)
People living with AIDS (% age 15-49)	2.80% (2001), 1.6% (2005)
Adult literacy rate (%-2004)	
□ Total □ Men □ Women	74% 85% 64%
Human development index (HDI) (Report 2007/8, value 2005)	0.598 (2005), 0.545 (00), 0.536 (95). Rank: 131 (2005)
Gender-related development index (GDI) (Report 2007/8, value 2005)	0.594 (2005), 0.537 (00) Rank: 115 (2005)
Access to clean water (2004)	
□ Total population using improved drinking water sources □ Urban access □ Rural access	41% 64% 35%
AID per capita (ODA per capita, US$, 2005)	38.2

Compiled by author. Sources: UNDP (2007/08); UNCTAD (2005); World Bank (2006a and World Development Indicators database as of April 2007); The Economist Intelligence Unit (2002) and CEA (2006).

Annex 8: Poverty Map of Cambodia



Annex 9: RGC's Rectangular Strategy



Source: IMF, 2006:iv.

Annex 10: Cambodia Millennium Development Goals (CMDGs)

Goals and Targets	1990	1995	2000	2002	2003	2004	2005	2015 MDG Target
GOAL 1: Eradicate extreme poverty and hunger								
Percentage share of income or consumption held by poorest 20%		*8.5*					7	11
Population below minimum level of dietary energy consumption (%)				33				20.5
Poverty headcount, national (% of population)		47					35	19.5
Prevalence of underweight in children (under five years of age)			45					26.2
GOAL 2: Achieve universal primary education								
Net primary enrollment (% of relevant age group)	67		85	93			91	100
Primary completion rate, total (% of relevant age group)			53	69	81			100
Proportion of pupils starting grade 1 who reach grade			70	*58*			59	100
Youth literacy rate (% ages 15-24)	73	76	79	80		83		100
GOAL 3: Promote gender equality and empower women								
Proportion of seats held by women in national parliament (%)			8	7	7	10	17	30
Ratio of girls to boys in primary and secondary education (%)	73		83	85			90	100
Ratio of young literate females to males (% ages 15-24)	81	84	89	90		90	90	100
Share of women employed in the nonagricultural sector (%)..	41	46..	52	53		*53*		
GOAL 4: Reduce child mortality								
Immunization, measles (% of children ages 12-23 months)	34	62	65	52	65	*65*		90
Infant mortality rate (per 1,000 live births)	80	88	95		97	*97*	*66*	50
Under 5 mortality rate (per 1,000)	115	120	135.		140	*140*	*82*	38.3
GOAL 5: Improve maternal health								
Births attended by skilled health staff (% of total)			32					80
Maternal mortality ratio (modeled estimate, per 100,000 live births)			450					250
GOAL 6: Combat HIV/AIDS, malaria, and other diseases								
Incidence of tuberculosis (per 100,000 people)	577	549	523	513..	508	*508*		
Prevalence of HIV, total (% of population 15-49)					3	3	*2*	
GOAL 7: Ensure environmental sustainability								
Access to an improved water source (% of population)				34				
Access to improved sanitation (% of population)				16				

Goals and Targets	1990	1995	2000	2002	2003	2004		2005	2015 MDG Target
Nationally protected areas (% of total land area)						19	*19*		
GOAL 8: Develop a Global Partnership for Development									
Aid per capita (current US$)	4	50	31		37	38	*38*		
Fixed line and mobile phone subscribers (per 1,000 people)	0..	2	12		30	38	*38*		
Internet users (per 1,000 people)			0.		2	2.	*3*		
Personal computers (per 1,000 people)		0..	1		2	2	*2*		
Total debt service (% of exports of goods and services)		1..	2		1	1			
GOAL 9: De-mining, UXO and assistance									
Annual numbers of civilian casualties recorded		*1,691*						797	0
Percentage of suspected contaminated areas cleared	10.	10						50	100
Other									
Fertility rate, total (births per woman)	6				4..	4	*4*		
GNI per capita, Atlas method (current US$) *		280	280		290	300	320		
GNI, Atlas method (current US$) (billions) *		3.1	3.5		3.8	4.1	4		
Gross capital formation (% of GDP) *	8	15	17		22	22	23		
Life expectancy at birth, total (years)	50				54	54	*54*		
Literacy rate, adult total (% of people ages 15 and above)	62	64	68		69		74		
Population, total (millions)	9.6	11.2	12.7		13.2	13.4	14		
Trade (% of GDP)	19.	80	114		127	133	146		

Source IMF (2007b: 24) based on World Development Indicators Database, UNHDI Report (2003) Cambodia MDG 2005 Update and staff estimates.

Notes:
Figures in italics refer to periods other than those specified.
* Do not reflect recent revisions to GDP estimates.

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Annex 11: Main Focus areas - Financial Sector Development Strategy 2006-2015

Summary Table: Main Focus - Financial Sector Development Strategy 2006-2015

Foundations of Financial Sector Development	**Vision:** Appropriate legal, institutional and policy foundations to promote market based finance and support good governance and the rule of law. **Preconditions for Financial Development and Economic Growth:** (a) Effective governance; (b) Property rights and their protection; (c) Enforcement of contracts and resolution of commercial disputes (d) • Human capital development **Institutional Underpinnings of Finance:** (a) Secured transactions and leasing; (b) company law; (c) sustainable fiscal and taxation system; (d) macroeconomic and monetary policy and related institutional framework; and (e) rule of law **Financial Market Infrastructure**: (a) Insolvency; (b) Financial information; (c) Corporate governance; (d) corruption and market integrity
Banking and Microfinance	**Banking - Vision**: A competitive, integrated and efficient banking system that is properly regulated and supervised and effectively mobilizes savings to provide financing to support economic growth and poverty reduction. **Microfinance Vision**: A viable, pro-poor and effective microfinance system that will provide affordable financial services to enable the poor to enhance income and reduce poverty.
Non-Bank Finance	**Insurance - Vision**: An insurance sector that protects businesses and individuals from catastrophic events and a pension system that will support retirement planning, both of which can provide capital for long-term investment.
Financial Markets	**Vision**: Financial markets which appropriately address risks, remove obstacles to financial development and support risk management and financial resource accumulation and allocation.
General and Cross-Sectoral Issues	**Vision**: Openness to financial product and institution innovation that creates more balanced financial structure, increases the depth of the financial sector, and promotes competition in the context of financial stability. **Issues**: a) Liberalization and Competition; (b) Financial Innovation (c) Regulatory Structure

Source: RGC (2007) Financial Sector Development Strategy 2006-2015

Annex 12: Profile of the Commercial Banking System in Cambodia

Cambodia: Profile of the Commercial Bank System (as of May 2007)

Exchange Rate: US$1 = KHR 4,046

Name of Bank	Number of Branches	Authorized Capital (000 US$)	Date of Operation	Majority Shareholder
Branches of Foreign Banks (3)				
Krung Thai Bank Public Co. Ltd.	1	13,000	Sep. 25, 1992	Thai
May Bank		13,400	Dec. 28, 1993	Malaysian
First Commercial Bank		13,000	Sep. 23, 1998	Taiwan POC
Representative Offices (2)				
Standard Chartered Bank			May 17, 2002	British
Vietnam Bank for Agriculture and Rural Development			Jul. 11, 2005	Vietnamese
Other Private Banks (12)				
Cambodia Commercial Bank*	3	13,000	Jul. 1, 1991	Thai (Siam City Bank)
Canadia Bank Ltd.	11	40,545	Nov. 11, 1991	Cambodian/Canadian
Cambodia Public Bank*	5	20,000	May 25, 1992	Malaysian (Public Bank)
Cambodia Asia Bank		13,000	Feb. 23, 1993	Malaysian
Singapore Banking Corp.		13,000	Oct. 27, 1993	Singaporean
Union Commercial Bank	3	14,150	Apr. 20, 1994	Hong Kong
Cambodia Mekong Bank	4	15,000	Jun. 4, 1994	Cambodia
Advanced Bank of Asia Ltd.		13,000	Oct. 25, 1996	Korean
Vattanac Bank	1	13,000	Jun. 7, 2002	Cambodian
ACLEDA Bank	30	30,000	Dec. 1, 2003	Cambodian
ANZ Royal (Cambodia)	7	27,000	Jul. 28, 2005	Australian & Cambodian
Foreign Trade Bank ***		13,000	Oct. 10, 1979	Cambodian
Specialized Banks (5)				
State-owned (1)				
Rural Development Bank		6,933	Jun. 22, 1998	State-owned
Privately owned (4)				
Peng Heng SME Bank		3,500	Mar. 20, 2001	Cambodian/Canadian
Cambodia Agriculture Industrial Specialized Bank	1	3,000	Mar. 19, 2002	Cambodian/Japanese
First Investment Specialized Bank		3,800	Oct. 22, 2005	Cambodian
ANCO Specialized Bank		2,600	May 31, 2006	Cambodian

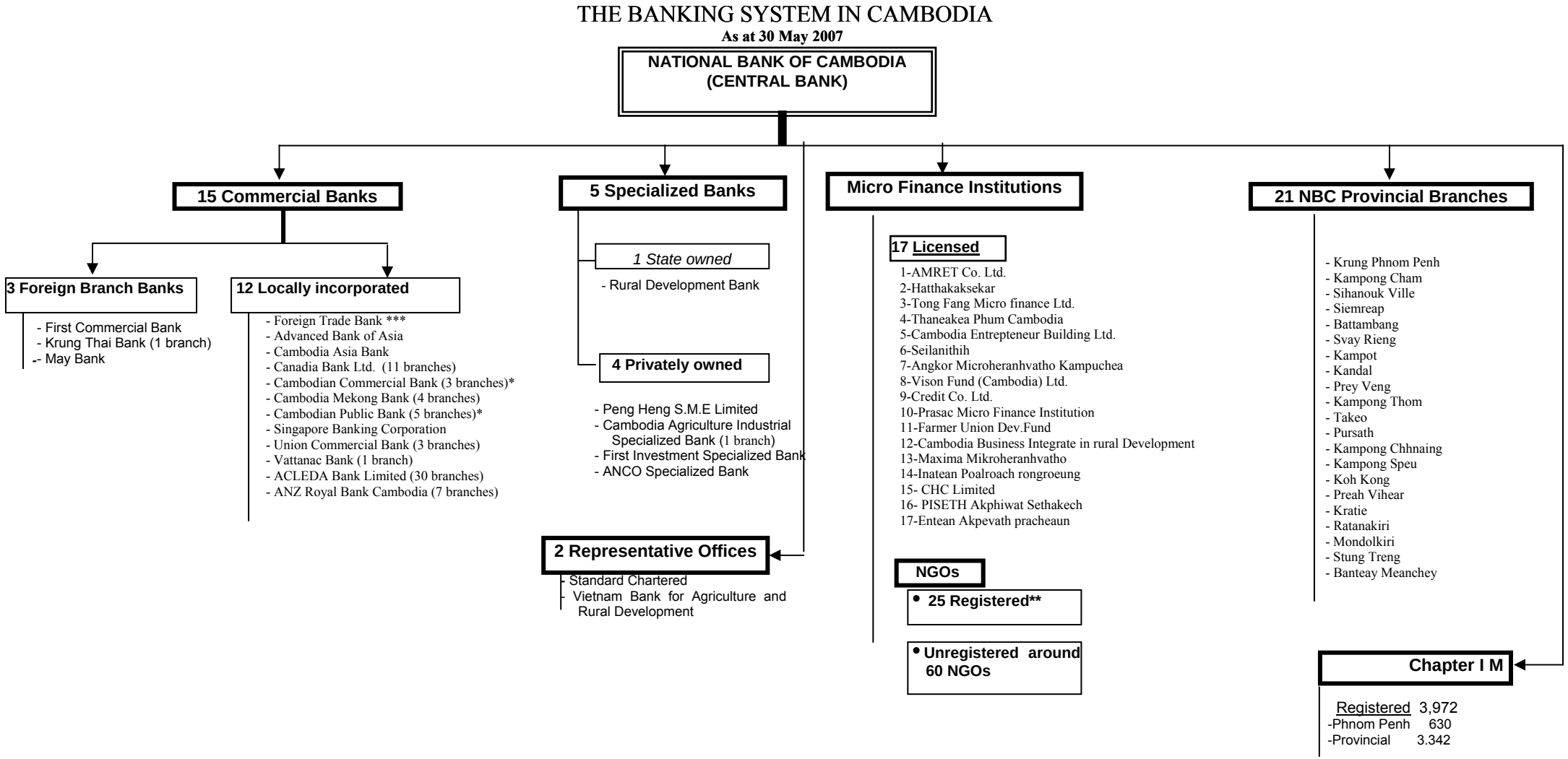
* Subsidiary of foreign banks.

** Insolvent banks.

*** Registered Capital in Riel

Source IMF 2007:55

Annex 13: Summary of the Banking System in Cambodia



* Subsidiairy of Foreign Bank
*** Registered Capital in Riel

1- Agriculture & Tourism Development Association 2- Aid Farmers Association 3- Association for Business Initiative 4- Association for Development of Diversified Khmer Nation 5- Association of Samnang Rural Development 6- Buddhism for Development Association and Supporting Environment 7- Cambodia Community Saving Federation. 8- Cambodia Credit to Abolish Poverty Organization. 9- Cambodia Mutual 10- Cambodia Rural Economy Development Organization 11- Cambodia Women's Development Agency 12- CICM Cambodia 13- Crop Supporting National Association.	14- Islamic local development organization 15- Khmer rural development association 16- Kratie Women Welfare Association 17- Lutheran World Federation Organization 18- Ministry of Rural Development Credit Scheme 19- Northwest Development Association 20- Rural Development Association 21- Rural Economic Development 22- Rural Family Development 23- Social Development in Rural 24- Ta Ong Soybean Development Association 25- Women's Saving and Development Cooperation

BANK BRANCHES	No	CLOSED BANKS 23	Date of withdrawal
Cambodian Commercial Bank (3 branches) - Battambang, Siemreap, Sihanouk Ville	3	1. Credit Bank of Cambodia license withdrawn	06-May-95
Canadia Bank Ltd. (11 branches) - Sihanouk Ville, Olimpic, Battambang, Kampong Cham, Pailin, Charle de Gaule, Siemreap, Poipet, Kampot , shopping center Sorya, Banteay Meanchey	11	2. Cambodia development Bank (Voluntary liquidated)	24-Jun-96
Cambodian Public Bank (5 branches) - Regency Square, Siemreap, Sihanouk Ville, Daun Penh, Phsar Kandal	5	3. Royal Cambodia bank (Voluntary liquidated)	1996
Union Commercial Bank (3 branches) - Sihanouk ville, Siemreap, Battambang.	3	4. Municipal Bank closed	04-Apr-98
ACLEDA Bank Limited (30 branches) - ACLEDA Bank: Provincial branches	30	5. Siam City Bank P.Penh branch (ceased operation)	01-Nov-98
Cambodia Mekong Bank (4 branches) - Siemreap, Sihanouk ville, Battambang, Olimpic	4	6. P.T.Lippo Bank P.Penh branch (ceased operation)	25-Jun-99
Krung Thai Bank (1 branch) - Siemreap (sub-branch)	1	7. Chansavangwonk Bank Corporation (Voluntary liquidated)	31-Jul-00
Vattanac Bank (1 branch) – Siemreap	1	8. Cambodia bank International (Voluntary liquidated)	31-Jul-00
ANZ Royal Bank Cambodia (7 branches) - Independence Monument, Riverside, Olimpic Market, Kramoun Sar, Siem Riep	7	9. Cambodia Farmers Bank (Compulsory liquidated)	31-Jul-00
Cambodia Agriculture Industrial Specialized Bank (1 branch) - Takhmau	1	10. Angkor Bank (Voluntary liquidated)	31-Jul-00
Total	**66**	11. Global Commercial Bank (Voluntary liquidated)	08-Dec-00
		12. Great International Bank Ltd. (Voluntary liquidated)	08-Dec-00
		13. Pacific Commercial bank Ltd. (Voluntary liquidated)	08-Dec-00
		14. Phnom Penh City Bank (Voluntary liquidated)	08-Dec-00
		15. Bangkok Bank Public Co.Ltd. P.P branch (Voluntary liquidated)	08-Dec-00
		16. Rich Nation Bank (Compulsory liquidated)	08-Dec-00
		17. Agriculture-Commercial bank (Compulsory liquidated)	08-Dec-00
		18. Thai Farmers B.Public Co.Ltd.P.P branch (Voluntary liquidated)	30-Mar-01
		19. First Overseas Bank (Compulsory liquidated)	19-Mar-02
		20. Singapore Commercial Bank (Voluntary liquidated)	19-Mar-02
		21. Emperor International Bank (Voluntary liquidated)	04-Apr-02
		22. Standard Chartered Bank downgrade to representative Office	01-May-02
		23. Credit Agricole Indosuez Bank (Voluntary liquidated)	18-Sep-02

Source: National Bank of Cambodia (NBC, 2007) and IMF 2007 – As at May 2007

Annex 14: Legal Status of Microfinance Operators

MFI/NGOs NAME	Full Name	STATUS WITH NBC
Main Microfinance Operators (1 Commercial Bank and 9 Licensed MFIs)		
ACLEDA Bank PLC	ACLEDA Bank Public Limited	CB
AMRET	AMRET Co Ltd	L
HATHAKAKSEKAR	Hattha Kaksekar	L
TPC	Thaneakea Phum (Cambodia) Ltd.	L
CEB	Cambodia Entrepreneur Building Ltd	L
AMK	Angkor Mikroheranhvatho (Kampuchea)	L
VISION FUND	VISION FUND (Cambodia)	L
CREDIT	CREDIT Co Ltd.	L
PRASAC	PRASAC Microfinance Institution Co. Ltd.	L
Other Microfinance Operators (9 [small] licensed MFI, 29 registered Microfinance Operators)		
[Smaller] Licensed Microfinance Institutions (MFI): < 10,000 Borrowers and 10,000 Million Portfolio		
TFM	Tong Fang Micro-finance	L
SEILANITHIH	SEILANITHIH Ltd	L
FUDF	Farmer Union Development Fund	L
CBIRD	Cambodia Business Integrated in Rural Development	L
MAXIMA	MAXIMA Micro Finance	L
IPRR	Intean Poalroath RongRoeurng Ltd.	L
CHC	CHC Ltd. (ex-Cambodia Health Committee)	L
PAS	Pisith Akphiwat Sethakech	L
EAP	Entean Akpevath Pracheachun	L
Registered Microfinance Operators		
CREDO	Cambodia Rural Economic Development Organization	R
SDR	Social Development in Rural	R
KRDA	Khmer Rural Development Association	R
RDA	Rural Development Association	R
CWDA	Cambodian Women's Development Agency	R
LWFO	Lutheran World Federation Organization	R
CCAPO	Cambodia Credit to Abolish Poverty Organization	R
WSDC	Women's Saving and Development Cooperative	R
AFA	Aid Farmers Association	R
ILDO	Islamic Local Development Organization	R
KWWA	Kratie Women Welfare Association	R
RED	Rural Economic Development	R
MRD Credit Scheme	Ministry of Rural Development Credit Scheme	R
ADDKN	Association for Development of Diversified Khmer Nation	R
CCSF	Cambodian Community Savings Federation	R
BDASE	Buddhism for Development Association and Supporting Environment	R
ABI	Association for Business Initiative	R
RUFADE	Rural Family Development	R
CSNA	Crop Supporting National Association	R
NWDA	Northwest Development Association	R
ATDA	Agriculture and Tourism Development Association	R
CICM	Centre International du Credi Mutuel	R
TOSDA	Ta Ong Soybean Development Association	R
Cambodia Mutual	Cambodia Mutual	R
ASARD	Association of Samnang Rural Development	R
CEN		R

Source: National Bank of Cambodia (NBC) Banking Supervision Department, as of January 2007
Legal Status: CB: Commercial Bank; L: Licensed MFI; R: Registered NGO;

Note: As compared with the figures from 2002 four previously registered organizations seem to have collapsed or reduce their portfolio in order to avoid the supervision of the Central Bank: Buddhism for Development (BFD); SAMAKITHOR; ARUNREAH and Help the Widow Organization (HTW). Source of information for 2002 (Torres, 2004: 38)

Annex 15: Licensing and Key Prudential Regulation for Microfinance Operators

The prakas stipulates that the licensing requirements for MFIs entail, among others:[254]

- Legal incorporation as Limited Liability Company or cooperative.[255]
- Identification of permanent shareholding, in particular the influential shareholders holding 20% or more of the capital.
- Identification with detailed curricula vitae of at least two persons responsible for the effective management of the MFI's operations.
- Identity of the members of the decision making board.
- Description of the planned activities over the next three years.

Key prudential regulations for MFIs include the following:

- 5 percent of registered capital must be kept in a permanent account with the NBC that bears no interest.[256]
- Capital adequacy ratio: 'eligible capital' (including perpetual subordinated debts) must be at least 20 percent of 'weighted risks.'
- Reserve requirement: minimum 5 percent of voluntary savings (compared to 8% for commercial banks).
- Liquidity ratio: liquid assets of at least 25 percent of voluntary savings.[257]
- Aggregate loan commitment to any one client cannot exceed 10 percent of net worth.[258]

  Loan classification and provisioning regulation as 'substandard,' 'doubtful,' and 'loss'

[254] Prakas B7-00-06.
[255] All the currently licensed MFIs have become Limited Liability Companies and not cooperatives. This choice has been forced by the fact that a law on cooperatives does not yet exist in Cambodia.
[256] Prakas 7.02-45 of 25 February 2002 covers the specific calculation. The minimum capital for MFIs is Riel 250 million (USD 62,500).
[257] Prakas 7.02-48 of 25 February 2002 covers the details.
[258] Prakas No. B 7-01-137, amended by prakas 7.02-146 of June 7, 2002.

The following table provides information on the key provisions of the microfinance regulatory framework.

	Commercial Bank	Specialized Bank	Licensed MFI	Registered MFI
Minimum Capital	USD 13 million (KH 50 billion)	USD 2.5 million (KH 10 billion)	USD 70,000 (KH 250 million)	n/a
Guarantee with NBC (Art.16)	At least 5% of minimum capital raised to 10%	5% minimum capital	5% minimum capital	n/a
Reserve rate for deposits	5% of deposits	5% of deposits	5% of deposits (excluding compulsory deposits)	n/a
License	Valid 3 years	Valid 3 years	Valid 3 years	n/a
Most demanding reporting interval	Daily	Daily	Monthly	Quarterly
Ownership	No restriction on number shareholders or the % of their shares, but a review for excessive concentration or wide dispersal (Art.25)			
Ownership	Influential shareholder, at least 20% of share capital or voting rights, will be enjoined to increase net worth until solvency standards are met (Art. 27)			
Services	Universal Banking	Restrictions in banking services, depending on license, e.g. wholesale or sector-specific lenders, and other activities such as FOREX	Restrictions on microfinance defined as "the delivery of financial services such as loans and deposits to the poor and low-income households and to micro-enterprises"	Restrictions on amount of portfolio and deposits
Taxes	Commercial Rates	Commercial Rates	Commercial Rates	n/a

Clark, Heather (2006:150) based on the following sources: Law on Banking and Financial Institutions (1999), Prakas on the Licensing of Micro-Financing Institutions and Prakas on Licensing of Specialized Banks (2000).

Two new parkas issued on 13 September 2006 are of direct relevance to MFIs: (1) the Prakas on amendment to Prakas on fee for increase of capital of banks and financial institutions which requires prior authorization from the NBC for any increase in capital and establishes a fee of 0.03% of the increased amount and (2) the prakas amending the Prakas on Licensing of Microfinance Institutions which establishes that licenses, once awarded, becomes

indefinite[259] and requires MFIs to maintain 5% of their registered capital in permanent accounts with the NBC (interest will be paid semi-annually by the NBC). In addition, MFIs have to pay a sum of 100,000 riels for each page of the Article of Association they amend. (EIC, 2007:36-39)

Note that the Prakas on Credit Information Sharing (CIS) issued in June 2006 and launched in September 2006 with the objective of allowing banks to share, through a website, negative information about their clients' credit status is not applicable to microfinance institutions (EIC, 2007:35). [260]

[259] Note that while the license is granted indefinitely, there is still an annual license fee of Riel 1 million per MFI, regardless of the number of branches.
[260] A code of conduct, regulating information collection, management and misuse, was signed by the 18 member banks (EIC, 2007:35)

Annex 16: Network Information of Microfinance Operators (as of May 2007)

NAME	NUMBER OF			LOANS OUTSTANDING				DEPOSIT BALANCES				N. EMPLOYEES		
	DISTRICTS	COMMUNES	VILLAGES	AMOUNT (million Riels)	N. BORROWERS			AMOUNT (million Riels)	N. DEPOSITORS					
					MALE	FEMALE	TOTAL		MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
SPECIALIZED BANK														
ACLEDA - MicroLoans + Small Loans				384,547	-	-	159,659							
TOTAL				**384,547**			**159,659**							
LICENSED MFIs														
AMRET (ex-E.M.T)	70	551	2,886	95,472.90	27,603	133,164	160,767	2551.46	131		131	412	108	520
HATHA KAKSEIKAR	54	300	1,574	30,012.42	4,453	8,992	13,445	1328.78	7,194	8,790	15,984	150	62	212
TFMF	13	38	46	380.55	155	620	775				0	9	5	14
TPC	68	507	2,606	36,940.55	6,705	56,101	62,806	518.52	4,383	36,462	40,845	168	77	245
CEB	40	359	1,741	58,963.27	1,422	15,592	17,014	2668.04		13,767	13,767	227	86	313
SEILANITHIH	34	157	488	9,947.54	1,232	2,571	3,803	890.81	1,297	2,712	4,009	72	21	93
AMK	66	407	2,060	28,343.15	12,492	70,272	82,764	268.14	1,671	5,478	7,149	204	58	262
VisionFund	53	232	1,556	32,233.63	7,231	35,054	42,285	330.1	5	4	9	162	100	262
CREDIT	54	308	1,181	26,781.00	0	12,683	12,683	4457		13,056	13,056	125	54	179
PRASAC	97	893	5,730	100,462.13	38,928	47,754	86,682	789.28	2,713	368	3,081	586	105	691
FUDF	7			3,054.00	0	2,509	2,509				0	6	2	8
CBIRD	15	74	298	3,552.48	515	1,099	1,614	570.18	660	1,462	2,122	40	13	53
MAXIMA	13	36	127	2,689.90	235	1,351	1,586	515.15	21	11	32	16	9	25
IPRR	15	47	160	6,946.61	0	2,485	2,485				0	25	9	34
CHC	16	87	234	4,942.42	1,064	4,149	5,213	27.64		3,326	3,326	46	8	54
PAS	4	9	24	647.97	157	166	323	0.1	1		1	5	2	7
EAP	17	45	62	4,275.68	22	71	93				0	10	8	18
TOTAL	**636**	**4,050**	**20,773**	**445,646.20**	**102,214**	**394,633**	**496,847**	**14,915.20**	**18,076**	**85,436**	**103,512**	**2,263**	**727**	**2,990**
REGISTERED NGOs														
CREDO	9	22	98	342.43	593	1,597	2,190	73.57	314	1,050	1,364	4	2	6
SDR	7	27	82	1,766.50	685	716	1,401	80.00	685	635	1,320	7	3	10
KRDA	2	13	71	505.17	618	1,143	1,761	200.50	1,199	1,996	3,195	8	4	12
RDA	1	3	7	125.86	517	672	1,189				0	1		1
CWDA		10	28	155.00	15	788	803	9.00	15	867	882	4	4	8
LWFO	5	25	94	67.52	298	353	651				0			-
CCAPO	1	4	7	573.00	20	185	205	464.00		136	136	10		10
WSDC	1	8	16	286.00		1,280	1,280	35.00		925	925		4	4
AFA	7	24	53	5,553.50	724	150	874	122.09	701	150	851	11		11
ILDO	3	4	11	18.00	64	82	146	1.40	64	82	146	8	7	15
KWWA	2	13	31	192.95	15	512	527	27.62	14	863	877	1	4	5
RED	2	2	5	388.90	40	391	431				0	5	4	9
MRD Credit Scheme	6	21	75	1,020.20	3310	2293	5,603				0	5	4	9
ADDKN	1	1	5	80.00	27	7	34	100.00		46	46	3	2	5

NAME	NUMBER OF			LOANS OUTSTANDING				DEPOSIT BALANCES				N. EMPLOYEES		
	DISTRICTS	COMMUNES	VILLAGES	AMOUNT (million Riels)	N. BORROWERS			AMOUNT (million Riels)	N. DEPOSITORS					
					MALE	FEMALE	TOTAL		MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
CCSF	12	76	357	3,755.35		1852	1,852	492.64	9,053	16,428	25,481	28	23	51
BDASE	3	6	18	80.18	671	974	1,645	20.72	778	1,052	1,830	3	1	4
ABI	2	6	20	96.09	100	415	515				0	7	8	15
RUFADE	2	6	13	125.01	6	89	95	0.87		84	84	2	2	4
CSNA		4	7	87.00			0				0			-
NWDA	6	43	81	2,305.06	136	165	301	86.60	139	165	304	8	5	13
ATDA	1	3	7	80.00	12	18	30	4.00	12	18	30	7		7
CICM	3	6		175.69	63	82	145	845.00	874	1,156	2,030	19	16	35
TOSDA	1	1	13	866.04	258	305	563	1.57	135	22	157	9	1	10
Cambodia Mutual	7	42	65	1,311.76	63	87	150				0	25	12	37
ASARD				377.22			0				0			-
CEN	2	9	49	522.65	135	268	403	96.53	3		3	4	1	5
TOTAL	**86**	**379**	**1,213**	**20,857.08**	**8,370**	**14,424**	**22,794**	**2,661.11**	**13,986**	**25,675**	**39,661**	**179**	**107**	**286**
GRAND TOTAL reported by NBC	**722**	**4,429**	**21,986**	**466,503**	**110,584**	**409,057**	**519,641**	**17,576**	**32,062**	**111,111**	**143,173**	**2,442**	**834**	**3,276**
GRAND TOTAL (including micro+small loan portfolio reported directly by ACLEDA Bank)	**722**	**4,429**	**21,986**	**851,050**	**110,584**	**409,057**	**679,300**	**17,576**	**32,062**	**111,111**	**143,173**	**2,442**	**834**	**3,276**

Source: National Bank of Cambodia (NBC) Banking Supervision Department, compiled in May 2007 and ACLEDA Bank Portfolio Information (personal communication October 2007)

Annex 17: Legal Names and Previous Names of the Main Microfinance Operators

	Full Legal Name	Other Previous Names
ACLEDA Bank PLC	ACLEDA Bank Public Limited	ACLEDA Bank Ltd and Association of Cambodia Local Economic Development Agencies (ACLEDA)
AMRET	AMRET	EMT: Ennatien Moulethan Tchonnebat
PRASAC	PRASAC Microfinance Institution Co. Ltd.	EU-PCA (Prasac Credit Association)/ Programme de Réhabilitation et d'Appui au Secteur Agricole du Cambodge
AMK	Angkor Mikroheranhvatho (Kampuchea)	TPT / CONCERN Worldwide
TPC	Thaneakea Phum (Cambodia) Ltd.	CRS/TPC: Catholic Relief Services/TPC
VISION FUND	VISION FUND (Cambodia)	World Vision International (Cambodia), MED program
CEB	Cambodia Entrepreneur Building Ltd	Cambodia Community Building (CCB)
HATHA KAKSEKAR	Hattha Kaksekar	
CREDIT	CREDIT	World Relief Cambodia/CREDIT)

Compiled from data from National Bank of Cambodia

Annex 18: Geographic Coverage of Top Nine Microfinance Operators

Geographical coverage, ranked in descending order as of June 2007

	Number of Provinces	Provinces	Number of District	Number of Communes	Number of Villages
ACLEDA Bank	All 24 provinces	All 24 provinces	187 branches or offices, distributed as follows: 45 Branches; 1 Operations office; 43 District offices; and 98 Service posts		
AMK	15	Banteay Meanchey Bat Dambang Kampong Cham Kampong Chhnang Kampong Speu Kampong Thom Kandal Kratie Otdar Mean Chey Preah Vihear Prey Veng Pursat Siem Reap Svay Rieng Takeo	67	427	2,198
PRASAC	13	Bat Dambang Kampong Cham Kampong Chhnang Kampong Speu Kampong Thom Kampot Kandal Kratie Phom Penh Prey Veng Pursat Svay Rieng Takeo	97	910	5,839
AMRET	13	Kampong Cham Kampong Chhnang Kampong Speu Kampong Thom Kampot Kandal Koh Kong Krong Kaep Prey Veng Shihanouk Vile Siem Reap Svay Rieng Takeo	71	558	2,986

	Number of Provinces	Provinces	Number of District	Number of Communes	Number of Villages
CEB	11	Banteay Meanchey Bat Dambang Kampong Cham Kampong Chhnang Kampong Speu Kampong Thom Kampot Kandal Phom Penh Pursat Siem Reap	79	544	2,329
TPC	9	Banteay Meanchey Bat Dambang Kampong Cham Kampot Kandal Phom Penh Siem Reap Svay Rieng Takeo	66	515	2,684
VisionFund	9	Banteay Meanchey Bat Dambang Kampong Cham Kampong Chhnang Kampong Speu Kampong Thom Kandal Preah Vihear Takeo	53	301	1,549
Hatha Kaksekar	8	Banteay Meanchey Kampong Cham Kampong Thom Kandal Phom Penh Pursat Siem Reap Takeo	56	303	1,603
CREDIT	6	Kampong Cham Kampong Chhnang Kandal Phom Penh Prey Veng Siem Reap	54	308	1,181

Compiled from data from CMA Network information as of 30 June 2007.

Annex 19: List of Provinces and Population Densities

List of provinces of Cambodia by population density in ascending order:

Ranking Population Density in Cambodian Provinces	Inhabitant per Km2
1. Mondolkiri	2.3
2. Stung Treng	7.3
3. Preah Vihear	8.6
4. Ratanakiri	8.7
5. Oddar Mean Chey	11.1
6. Koh Kong	11.8
7. Kracheh	23.7
8. Pursat	28.4
9. Krong Pailin	28.5
10. Kompong Thum	41.2
11. Siem Riep	67.6
12. Battambang	67.8
13. Kompong Chhnang	75.7
14. Kompong Speu	85.3
15. Krong Kep	85.3
16. Banteay Mean Chey	86.5
17. Kampot	108.4
18. Svay Rieng	161.2
19. Kompong Cham	164.2
20. Krong Preah Sihanouk	179.4
21. Prey Veng	193.7
22. Takeo	221.8
23. Kandal	301.3
24. Phnom Penh	3,447.6

Source: Population Census of 1998

Annex 20: Additional MIX Market Benchmarks

Additional Benchmarks for Comparing Bolivia, Bosnia Herzegovina and Cambodia, as produced by the Microfinance Information eXchange (MIX).

Indicator	Bolivia			Bosnia				Cambodia		
	2004	2005	2006	2004	2005	2006	**2006**	2004	2005	2006
Count	9	9	9	12	12	12	**13**	9	9	9
Capital/ Asset Ratio	13.5%	11.5%	11.1%	37.3%	30.4%	27.1%	27.8%	66.7%	59.7%	37.8%
Debt/Equity	6.41	7.72	7.99	1.68	2.29	2.70	2.59	0.50	0.68	1.64
Deposits to Loans	43%	44%	49%	0%	0%	0%	0%	0%	1%	1%
Median Borrowers	48,496	64,517	74,106	8,573	10,610	14,431	11,611	20,502	36,221	55,860
Gross Loan Portfolio	17,500,000	18,900,000	23,900,000	9,301,687	11,300,000	19,500,000	15,900,000	3,533,294	4,426,465	7,109,964
ALB	1,357	1,425	1,581	1,240	1,229	1,589	1,583	113	136	234
ALB/GNI	141%	149%	157%	61%	60%	59%	59%	35%	43%	54%
Number of Voluntary Depositors	86,658	76,587	79,992	-	-	-	1	172	145	431
Voluntary Deposits	11,700,000	17,000,000	20,000,000	-	-	-	-	3,364	25,536	240,737
Return on Assets	1.5%	1.8%	1.9%	6.7%	4.3%	4.3%	3.7%	1.8%	2.6%	3.4%
Return on Equity	12.7%	9.8%	16.6%	18.0%	16.1%	16.0%	14.9%	2.6%	5.6%	13.5%
Financial Revenue / Assets	21.1%	20.2%	20.5%	25.3%	24.9%	24.5%	23.5%	28.2%	30.3%	28.6%
Nominal Yield	22.0%	22.2%	22.0%	30.2%	28.1%	28.0%	27.3%	39.6%	37.6%	32.0%
Financial Expense / Assets	4.6%	4.6%	4.7%	3.5%	5.2%	6.7%	6.6%	4.1%	5.2%	5.7%
Provision for Loan Impairment / Assets	1.0%	1.0%	1.2%	0.8%	1.1%	1.4%	1.5%	0.6%	0.3%	0.1%
Operating Expense / Assets	13.8%	12.3%	12.2%	14.6%	13.1%	12.6%	12.5%	21.8%	18.6%	16.1%
Operating Expense/ Loan Portfolio	16.0%	15.4%	15.2%	17.4%	15.1%	14.3%	14.0%	26.3%	22.2%	20.4%
Personnel Expense/ Loan Portfolio	8.3%	7.6%	7.6%	11.5%	9.4%	9.2%	9.3%	14.9%	13.2%	10.8%
Borrowers per Loan Officer	298	235	119	241	236	239	242	260	209	288
Portfolio at Risk> 30 Days	1.60%	1.50%	2.20%	0.50%	1.00%	0.60%	0.80%	0.70%	0.60%	0.30%

Source: Additional Benchmarks for Microfinance Information eXchange (2007)

Annex 21: Comparison Microfinance Operators 2000 to 2006

MARKET SHARE LOAN OUSTANDING	2000	2001	2002	2003	2004	2005	2006
ACLEDA	56%	58%	56%	57%	57%	54%	48%
PRASAC	12%	10%	15%	13%	11%	10%	12%
AMRET	10%	10%	10%	11%	10%	10%	10%
CEB	2%	2%	3%	4%	5%	6%	7%
TPC	5%	2%	3%	4%	5%	4%	4%
VISIONFUND	2%	2%	1%	1%	2%	3%	3%
HATHA KAKSEIKAR	4%	4%	3%	3%	3%	3%	3%
AMK	1%	1%	1%	2%	2%	2%	3%
CREDIT		2%	2%	2%	2%	2%	3%

Analysis by author from NBC's data

RANK LOAN OUSTANDING	2000	2001	2002	2003	2004	2005	2006
ACLEDA	1	1	1	1	1	1	1
PRASAC	2	2	2	2	2	3	2
AMRET	3	3	3	3	3	2	3
CEB	7	6	4	5	4	4	4
TPC	4	5	6	4	5	5	5
VISIONFUND	6	8	9	9	8	7	6
HATHA KAKSEIKAR	5	4	5	6	6	6	7
AMK	8	9	8	8	9	9	8
CREDIT		7	7	7	7	8	9

Analysis by author from NBC's data

MARKET SHARE NUMBER OF BORROWERS	2000	2001	2002	2003	2004	2005	2006
ACLEDA	16%	20%	25%	27%	27%	26%	24%
PRASAC	9%	9%	19%	16%	17%	16%	15%
AMRET	20%	21%	26%	25%	24%	24%	23%
CEB	1%	2%	2%	2%	2%	2%	2%
TPC	9%	8%	7%	9%	9%	8%	9%
VISIONFUND	5%	4%	3%	3%	5%	5%	6%
HATHA KAKSEIKAR	2%	2%	2%	1%	2%	2%	2%
AMK	5%	4%	3%	4%	5%	7%	11%
CREDIT			2%	2%	2%	2%	2%

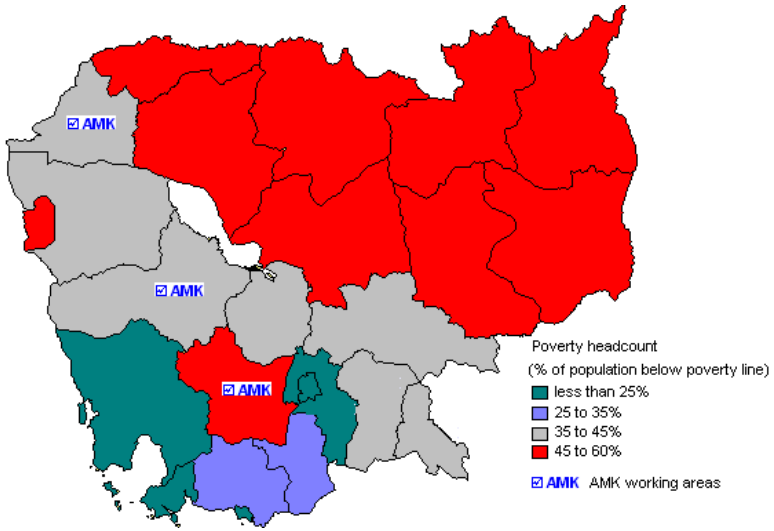
Analysis by author from NBC's data

RANK NUMBER OF BORROWERS	2000	2001	2002	2003	2004	2005	2006
ACLEDA	2	2	2	1	1	1	1
PRASAC	3	3	3	3	3	3	3
AMRET	1	1	1	2	2	2	2
CEB	8	8	9	8	8	8	7
TPC	4	4	4	4	4	4	5
VISIONFUND	5	5	6	6	6	6	6
HATHA KAKSEIKAR	7	7	8	9	9	9	8
AMK	5	5	5	5	5	5	4
CREDIT			7	7	7	7	9

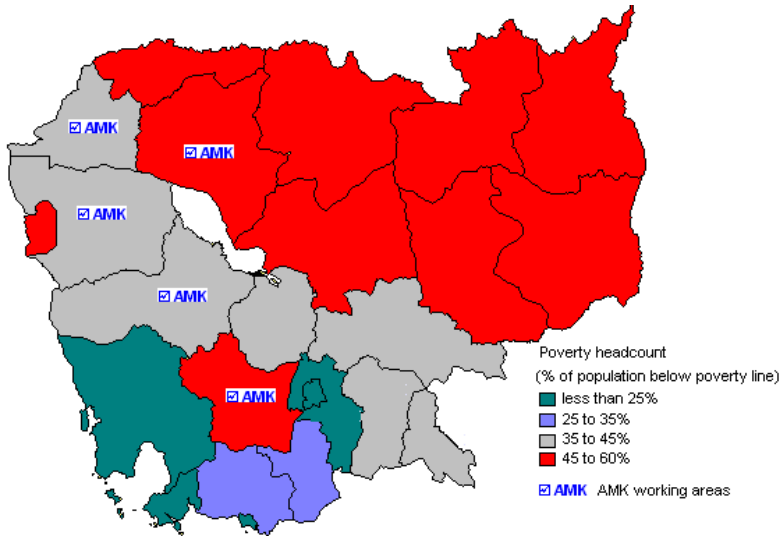
Analysis by author from NBC's data

Annex 22: Synopsis Evolution AMK Geographical Coverage and Incidence of Poverty by Province

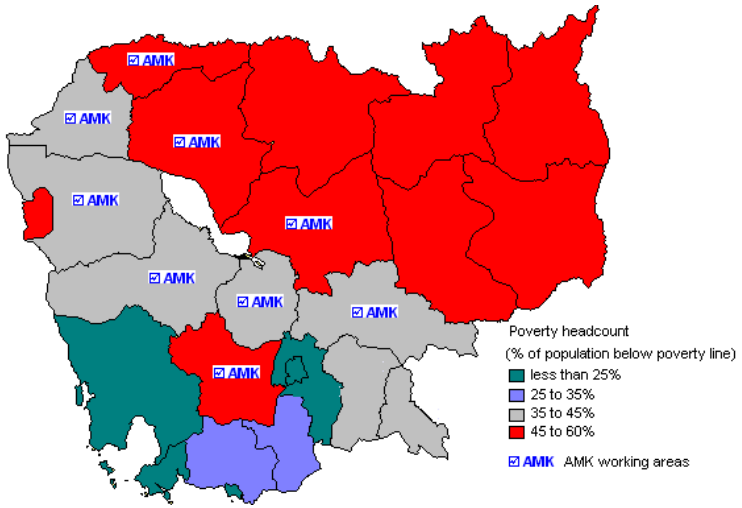
2004 [Coverage: 3 provinces]



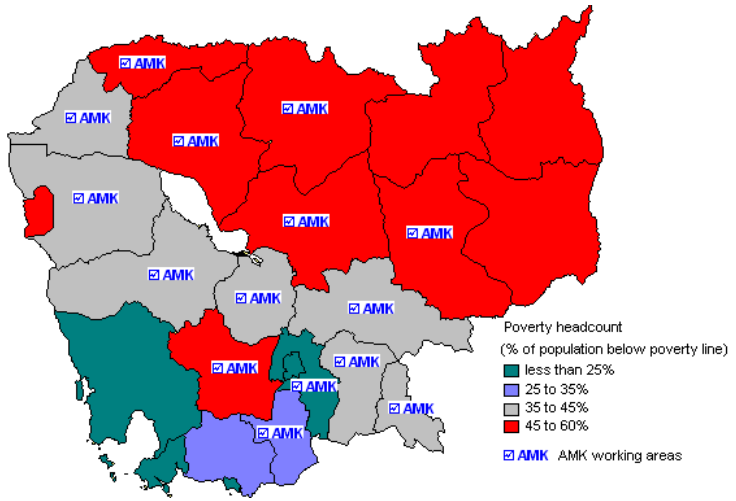
2005 [Coverage: 5 provinces]



2006 [Coverage: 9 provinces]



2007 [Coverage: 15 provinces]



Analysis by author. Sources: AMK Annual Report 2006 RGC (2006: 46, 53, 55)

Annex 23: Village Profile: Distance to All Infrastructure Facilities in Kilometers

Facilities	Distance to all infrastructures (Km)							
	Freq	%	Avg	Median	Mode	Std.	Min	Max
▪ Referral Hospital	0	0%	10.5	10	5	6.94	0.5	25
▪ Health Center	2	8%	5.15	4	3	4.31	0.5	15
▪ Private Clinic with midwife	20	80%	3	3	3	2.47	0.5	7
▪ Primary School	12	48%	2.57	3	0.1	2.25	0.1	7
▪ Lower Secondary School	2	8%	5.66	5	5	4.81	0.2	20
▪ Upper Secondary School	0	0%	9.36	7	5	7.97	1	40
▪ Market/bazaar/trading center	4	16%	4.93	5	5	3.45	0.5	12
▪ Shop for pesticide…	5	20%	6.68	5	5	5.07	0.5	20
▪ Livestock/Agricultural worker	18	72%	7.3	5	5	10.38	0.1	30
▪ Access to Electricity	6	24%	9.5	7	20	6.92	1.5	20
▪ Access to piped drinking water	1	4%	23	20	20	20.38	0.5	70
▪ Access to network for mobile phone	25	100%						

Source: Khlok et al, 2007

Annex 24: Summary Sampling Methodology

Sampling: Stage 1

27 Villages (Prpnal to size by Province: 9BMC, 2BTB, 7KSP, 6PST, 3SRP)	Commune	District	Province	Date of Fieldwork
Boeng Veng	Ta Lom	Mongkol Borey	BMC	13-Mar-06
Kok Lun	Chup Vary	Preah Neak Preah	BMC	14-Mar-06
Prey Changha Lich	Banteay Neang	Mongkol Borey	BMC	15-Mar-06
Ta Trai	Kokathen	Thmar Pouk	BMC	4-Apr-06
Chhouk	Makak	Serey Sophoan	BMC	7-Apr-06
Tanorng	Koy Meng	Mongkol Borey	BMC	6-Apr-06
Andong Khlong	Banteay Chmar / Kumru	Thmar Pouk	BMC	5-Apr-06
Svay Sor II	Pon Ley	Phnom Srock	BMC	8-May-06
Poy Snuol	Poy char	Phnom Srok	BMC	9-May-06
CHHOUNG Tradak	Roka	Sangke	BTB	19-May-06
Chrey I	Chrey	Moung Russey	BTB	18-May-06
Trapaing Antong	Chan Seng	Oudong	KSP	22-May-06
Chumpuo Preuk	Chumpuo Preuk	Oudong	KSP	10-Mar-06
Taing Banteay B	Veal Pun	T'pong	KSP	11-Apr-06
Phnear Orng	Tumpor Meas	Samrong Tong	KSP	12-Apr-06
Kraing Snoul	Pneay	Somrongtong	KSP	6-Mar-06
Kraing Tachor	Rong Roeung	Thpong	KSP	7-Mar-06
Teuk Long IIB	Rong Roeung	Thpong	KSP	13-Apr-06
Toul Thmor	Talo	Bakan	PST	20-Mar-06
Kandal	Phteah Rong	Kravanh	PST	21-Mar-06
Prey Srokum	Chsa	Kandieng	PST	22-Mar-06
Buor Srange	Trapeang Chong	Bakan	PST	23-Mar-06
Prey Smach	Ror Kat	Phnom Kra Vanh	PST	3-May-06
Kampeng	Pro Nill	Phnom Kravanh	PST	4-May-06
Phum Prie Kchorng	Khum Krouch Kor	Srok Kro Lanh	SRP	24-Apr-06
Phum Pak Pann	Khum Sorso Sdom	Srok Puok	SRP	25-Apr-06
Phum Anlung	Khum Ta An	Srok Kro Lanh	SRP	26-Apr-06
3 Villages (Random among all 34,332 clients)	**Commune**	**District**	**Province**	**CO**
Phum Run	Khum Chonleas Dai	Srok Kro Lanh	SRP	27-Apr-06
Snay Toul	Trapeang Chong	Bakan	PST	5-May-06
Phav Thmey	Kok Balang	Mongkol Borey	BMC	10-May-06

	Distibution by District	
BMC	4	Mongkol Borei
	2	Phnum Srok
	1	Preah Netr Preah
	1	Serei Saophoan
	2	Thma Puok
BTB	1	Moung Ruessei
	1	Sangkae
KSP	2	Odongk
	2	Samraong Tong
	3	Thpong
PST	3	Bakan
	1	Kandieng
	3	Phnum Kravanh
SRP	3	Kralanh
	1	Puok

Sampling: Stage 2

The specific individuals interviewed in each of the villages are the following:

Random Client in each village	Questionnaire #	Village	Commune	District	Province	Client	Client Replacement	Non Client
SEY Chenda	2006040501	Andoung Khlong	Kumru	Thma Pouk	BMC	x		
CHHORN CHHORB	2006040502	Andoung Khlong	Kumru	Thma Pouk	BMC	x		
Phas Neoeus	2006040505	Andoung Khlong	Kumru	Thma Pouk	BMC	x		
Sok Leat	2006040521	Andoung Khlong	Kumru	Thma Pouk	BMC	x		
Prek Sokha	2006040522	Andoung Khlong	Kumru	Thma Pouk	BMC	x		
Chan Thavy	2006040523	Andoung Khlong	Kumru	Thma Pouk	BMC	x		
Sang Soeut	2006040524	Andoung Khlong	Kumru	Thma Pouk	BMC	x		
Sok Lorb	2006040503	Andoung Khlong	Kumru	Thma Pouk	BMC		x	
Lan Vy	2006040504	Andoung Khlong	Kumru	Thma Pouk	BMC		x	
Nan Sorn	2006040506	Andoung Khlong	Kumru	Thma Pouk	BMC		x	
Theav Nai	2006040525	Andoung Khlong	Kumru	Thma Pouk	BMC		x	
Chao Rathsy	2006040526	Andoung Khlong	Kumru	Thma Pouk	BMC		x	
Non Chheun	2006040507	Andoung Khlong	Kumru	Thma Pouk	BMC			x
Nam Yim	2006040527	Andoung Khlong	Kumru	Thma Pouk	BMC			x
Khuon Ley	2006040528	Andoung Khlong	Kumru	Thma Pouk	BMC			x
DOUNG Sai Doeung	2006031301	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC	x		
Ly Chann Uon	2006061302	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC	x		
HAKK Kun	2006091303	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC	x		
LY Hai Bey	2006121304	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC	x		
Tul Teab	2006151305	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC	x		
Suong Pheun	2006181306	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC	x		
Seng Heng	2006031323	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC	x		
Sut Prorm	2006031325	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC	x		
Urm Muy Ky	2006031326	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC	x		
Sun Sin	2006031321	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC		x	
DOUNG Pang	2006031322	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC		x	
Sut Prem	2006031324	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC		x	
Chhouk Boun	2006031307	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC			x
Meng Sokha	2006031327	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC			x
Chhom Nga	2006031328	Boeng Veaeng	Ta Lam	Mongkol Borei	BMC			x
SRE Toes	2006040701	Chhuk	Mkak	Serei Saophoan	BMC	x		
Mao Puon	2006040703	Chhuk	Mkak	Serei Saophoan	BMC	x		
Rem Loeb	2006040705	Chhuk	Mkak	Serei Saophoan	BMC	x		
CHHORM Chhoeury	2006040706	Chhuk	Mkak	Serei Saophoan	BMC	x		
VY Chhan	2006040721	Chhuk	Mkak	Serei Saophoan	BMC	x		
BOU Roeury	2006040722	Chhuk	Mkak	Serei Saophoan	BMC	x		
SAM POR Sa Vy	2006040723	Chhuk	Mkak	Serei Saophoan	BMC	x		
NHEB Chen	2006040724	Chhuk	Mkak	Serei Saophoan	BMC	x		
Noeurng Niev	2006040725	Chhuk	Mkak	Serei Saophoan	BMC	x		
SREY DY	2006040726	Chhuk	Mkak	Serei Saophoan	BMC	x		

Random Client in each village	Questionnaire #	Village	Commune	District	Province	Client	Client Replacement	Non Client
Brakk Phorlly	2006040702	Chhuk	Mkak	Serei Saophoan	BMC		x	
KHOEURN Khoeurth	2006040704	Chhuk	Mkak	Serei Saophoan	BMC		x	
Vinh Veur	2006040707	Chhuk	Mkak	Serei Saophoan	BMC			x
Thorng Net	2006040727	Chhuk	Mkak	Serei Saophoan	BMC			x
Nhark Leub	2006040728	Chhuk	Mkak	Serei Saophoan	BMC			x
Chou Leang	2006051002	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC	x		
Meoung Ry	2006051004	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC	x		
Tout Sarun	2006051005	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC	x		
Hem Ven	2006051021	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC	x		
Chork Phav	2006051023	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC	x		
DOEURN Diem	2006051024	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC	x		
My loeu	2006051001	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC		x	
Mean Phen	2006051003	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC		x	
Khang Chann	2006051006	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC		x	
Khang Chorn	2006051022	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC		x	
Noeun Chhut	2006051025	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC		x	
Ma Hatt	2006051026	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC		x	
Mao Touch	2006051007	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC			x
Chheoun Pheap	2006051027	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC			x
Kang Much	2006051028	Ph'av Thmei	Kouk Ballangk	Mongkol Borei	BMC			x
Linh Lout	2006031401	Kouk Lun	Chob Veari	Preah Netr Preah	BMC	x		
Ngov Sao	2006031404	Kouk Lun	Chob Veari	Preah Netr Preah	BMC	x		
Yot Soeur	2006031405	Kouk Lun	Chob Veari	Preah Netr Preah	BMC	x		
Chann Yem	2006031406	Kouk Lun	Chob Veari	Preah Netr Preah	BMC	x		
Nor Savy	2006031421	Kouk Lun	Chob Veari	Preah Netr Preah	BMC	x		
Chann On	2006031424	Kouk Lun	Chob Veari	Preah Netr Preah	BMC	x		
Suon Mom	2006031425	Kouk Lun	Chob Veari	Preah Netr Preah	BMC	x		
Dok Duk	2006031426	Kouk Lun	Chob Veari	Preah Netr Preah	BMC	x		
Thoeuk Ean	2006031423	Kouk Lun	Chob Veari	Preah Netr Preah	BMC		x	
Mao Sina	2006031422	Kouk Lun	Chob Veari	Preah Netr Preah	BMC		x	
Lous Tes	2006031402	Kouk Lun	Chob Veari	Preah Netr Preah	BMC		x	
Soun Phary	2006031403	Kouk Lun	Chob Veari	Preah Netr Preah	BMC		x	
Nem Kim	2006031407	Kouk Lun	Chob Veari	Preah Netr Preah	BMC			x
Sun Son	2006031427	Kouk Lun	Chob Veari	Preah Netr Preah	BMC			x
Prom Khen	2006031428	Kouk Lun	Chob Veari	Preah Netr Preah	BMC			x
Soeun Suom	2006031501	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC	x		
Teb Sambath	2006031502	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC	x		
Chhoeurn Chhan	2006031503	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC	x		
Chat Roeun	2006031504	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC	x		
Lam Som Vuthea	2006031505	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC	x		
Mith Moeut	2006031506	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC	x		
Sat Pring	2006031521	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC	x		
Leang Sambath	2006031522	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC	x		
Brang Sothy	2006031523	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC	x		
Loeum Rom	2006031524	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC	x		
Pen Rorng	2006031525	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC	x		

Random Client in each village	Questionnaire #	Village	Commune	District	Province	Client	Client Replacement	Non Client
Loem Oeur	2006031526	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC		x	
Tong Chantha	2006031507	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC			x
Chhay Saveng	2006031527	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC			x
Hem Chantha	2006031528	Prey Changha Lech	Banteay Neang	Mongkol Borei	BMC			x
MOA Vuy	2006050901	Paoy Snuol	Paoy Char	Phnum Srok	BMC	x		
LONG Sa Ngiem	2006050903	Paoy Snuol	Paoy Char	Phnum Srok	BMC	x		
PANN Sophat	2006050904	Paoy Snuol	Paoy Char	Phnum Srok	BMC	x		
HONG Lai Sik	2006050905	Paoy Snuol	Paoy Char	Phnum Srok	BMC	x		
LY Phouv	2006050906	Paoy Snuol	Paoy Char	Phnum Srok	BMC	x		
SREY Mory	2006050921	Paoy Snuol	Paoy Char	Phnum Srok	BMC	x		
TANN Hoeum	2006050922	Paoy Snuol	Paoy Char	Phnum Srok	BMC	x		
PHON Pyrom	2006050923	Paoy Snuol	Paoy Char	Phnum Srok	BMC	x		
SUON Phalla	2006050924	Paoy Snuol	Paoy Char	Phnum Srok	BMC	x		
MUY Sork	2006050925	Paoy Snuol	Paoy Char	Phnum Srok	BMC	x		
HONG Nuon	2006050926	Paoy Snuol	Paoy Char	Phnum Srok	BMC	x		
THANN Horn	2006050902	Paoy Snuol	Paoy Char	Phnum Srok	BMC		x	
Kim Leap	20060050907	Paoy Snuol	Paoy Char	Phnum Srok	BMC			x
Kong Panlim	2006050927	Paoy Snuol	Paoy Char	Phnum Srok	BMC			x
Moeun Tom	2006050928	Paoy Snuol	Paoy Char	Phnum Srok	BMC			x
HOUY Sa Lev	2006050801	Svay Sa II	Ponley	Phnum Srok	BMC	x		
Luos Mann	2006050803	Svay Sa II	Ponley	Phnum Srok	BMC	x		
Hor Kim Seang	2006050804	Svay Sa II	Ponley	Phnum Srok	BMC	x		
Me SaTom	2006050805	Svay Sa II	Ponley	Phnum Srok	BMC	x		
An Aang	2006050806	Svay Sa II	Ponley	Phnum Srok	BMC	x		
Yei Chom Neanh	2006050821	Svay Sa II	Ponley	Phnum Srok	BMC	x		
Hun Sao Ky	2006050823	Svay Sa II	Ponley	Phnum Srok	BMC	x		
Sorn Phut	2006050824	Svay Sa II	Ponley	Phnum Srok	BMC		x	
Rem Lmey	2006050825	Svay Sa II	Ponley	Phnum Srok	BMC		x	
Srep Hornn	2006050826	Svay Sa II	Ponley	Phnum Srok	BMC		x	
Sab Ngek	2006050802	Svay Sa II	Ponley	Phnum Srok	BMC		x	
Pach Roth	2006050822	Svay Sa II	Ponley	Phnum Srok	BMC		x	
Pen Sy	2006050807	Svay Sa II	Ponley	Phnum Srok	BMC			x
Vann Phen	2006050827	Svay Sa II	Ponley	Phnum Srok	BMC			x
Ty Mun	2006050828	Svay Sa II	Ponley	Phnum Srok	BMC			x
BAN Loeury	2006040601	Ta Nong	Koy Maeng	Mongkol Borei	BMC	x		
NORM Yuom	2006040602	Ta Nong	Koy Maeng	Mongkol Borei	BMC	x		
PHOEK Seang Hin	2006040603	Ta Nong	Koy Maeng	Mongkol Borei	BMC	x		
SREY Sarorb	2006040604	Ta Nong	Koy Maeng	Mongkol Borei	BMC	x		
MIN Ly	2006040606	Ta Nong	Koy Maeng	Mongkol Borei	BMC	x		
NUT Hieb	2006040621	Ta Nong	Koy Maeng	Mongkol Borei	BMC	x		
BAN Nou	2006040623	Ta Nong	Koy Maeng	Mongkol Borei	BMC	x		
KANN Ya	2006040624	Ta Nong	Koy Maeng	Mongkol Borei	BMC	x		
THORNG Soeng	2006040625	Ta Nong	Koy Maeng	Mongkol Borei	BMC	x		
EK Heng	2006040626	Ta Nong	Koy Maeng	Mongkol Borei	BMC	x		
NORM Koeurng	2006040605	Ta Nong	Koy Maeng	Mongkol Borei	BMC		x	
HOENG Vann Sy	2006040622	Ta Nong	Koy Maeng	Mongkol Borei	BMC		x	

Random Client in each village	Questionnaire #	Village	Commune	District	Province	Client	Client Replacement	Non Client
Pol San	2006040607	Ta Nong	Koy Maeng	Mongkol Borei	BMC			x
Kim Lorm	2006040627	Ta Nong	Koy Maeng	Mongkol Borei	BMC			x
Sam Ly	2006040628	Ta Nong	Koy Maeng	Mongkol Borei	BMC			x
YEN Viem	2006040401	Ta Trai	Kouk Kakthen	Thma Puok	BMC	x		
Pan Chek Mach	2006040402	Ta Trai	Kouk Kakthen	Thma Puok	BMC	x		
KONG Hing	2006040403	Ta Trai	Kouk Kakthen	Thma Puok	BMC	x		
Bun Than	2006040405	Ta Trai	Kouk Kakthen	Thma Puok	BMC	x		
MORM Vy	2006040406	Ta Trai	Kouk Kakthen	Thma Puok	BMC	x		
TOUCH Yeam	2006040421	Ta Trai	Kouk Kakthen	Thma Puok	BMC	x		
Natt Chab	2006040423	Ta Trai	Kouk Kakthen	Thma Puok	BMC	x		
SRORB Pheap	2006040424	Ta Trai	Kouk Kakthen	Thma Puok	BMC	x		
CHHUT Nhess	2006040404	Ta Trai	Kouk Kakthen	Thma Puok	BMC		x	
Broek Sai	2006040422	Ta Trai	Kouk Kakthen	Thma Puok	BMC		x	
Chhut Som Ban	2006040425	Ta Trai	Kouk Kakthen	Thma Puok	BMC		x	
CHHUT Borey	2006040426	Ta Trai	Kouk Kakthen	Thma Puok	BMC		x	
Vong Chorm	2006040407	Ta Trai	Kouk Kakthen	Thma Puok	BMC			x
Korn Satt	2006040427	Ta Trai	Kouk Kakthen	Thma Puok	BMC			x
Kak Ly	2006040428	Ta Trai	Kouk Kakthen	Thma Puok	BMC			x
SAK Yoeum	2006051901	CHHOUNG Tradak	Roka	Sangkae	BTB	x		
CHEAV Ban	2006051902	CHHOUNG Tradak	Roka	Sangkae	BTB	x		
BAN Chhorn	2006051903	CHHOUNG Tradak	Roka	Sangkae	BTB	x		
KONG Pov	2006051904	CHHOUNG Tradak	Roka	Sangkae	BTB	x		
NOEUM Poeun	2006051905	CHHOUNG Tradak	Roka	Sangkae	BTB	x		
YET Yan	2006051924	CHHOUNG Tradak	Roka	Sangkae	BTB	x		
YIB Ya	2006051925	CHHOUNG Tradak	Roka	Sangkae	BTB	x		
BAN Chanthy	2006051926	CHHOUNG Tradak	Roka	Sangkae	BTB	x		
KHOT Kong	2006051906	CHHOUNG Tradak	Roka	Sangkae	BTB		x	
BIN Khom	2006051923	CHHOUNG Tradak	Roka	Sangkae	BTB		x	
PHAN Phath	2006051922	CHHOUNG Tradak	Roka	Sangkae	BTB		x	
CHEAV Bai	2006051921	CHHOUNG Tradak	Roka	Sangkae	BTB		x	
Reun Ky	2006051907	CHHOUNG Tradak	Roka	Sangkae	BTB			x
"Unknown"	2006051927	CHHOUNG Tradak	Roka	Sangkae	BTB			x
Chak Sear	2006051928	CHHOUNG Tradak	Roka	Sangkae	BTB			x
SAO Thoeub	2006051802	Chrey I	Chrey	Moung Ruessei	BTB	x		
TENG Chhort	2006051803	Chrey I	Chrey	Moung Ruessei	BTB	x		
PHUONG Mao	2006051805	Chrey I	Chrey	Moung Ruessei	BTB	x		
AM Pov	2006051806	Chrey I	Chrey	Moung Ruessei	BTB	x		
HOM Sokh Roeung	2006051821	Chrey I	Chrey	Moung Ruessei	BTB	x		
SOEUM Sarum	2006051822	Chrey I	Chrey	Moung Ruessei	BTB	x		
TANN Rann	2006051825	Chrey I	Chrey	Moung Ruessei	BTB	x		
SAT Chhieng	2006051826	Chrey I	Chrey	Moung Ruessei	BTB	x		
TANN Rorn	2006051801	Chrey I	Chrey	Moung Ruessei	BTB		x	
HAM Rort	2006051804	Chrey I	Chrey	Moung Ruessei	BTB		x	
CHEA Kong	2006051824	Chrey I	Chrey	Moung Ruessei	BTB		x	
VIEN Ley	2006051823	Chrey I	Chrey	Moung Ruessei	BTB		x	
Chum Chhert	2006051807	Chrey I	Chrey	Moung Ruessei	BTB			x

Random Client in each village	Questionnaire #	Village	Commune	District	Province	Client	Client Replacement	Non Client
Touch Heong	2006051827	Chrey I	Chrey	Moung Ruessei	BTB			x
Pov Sok	2006051828	Chrey I	Chrey	Moung Ruessei	BTB			x
Chhorn Thim	2006031001	Chumpu Proeks	Chumpu Proeks	Odongk	KSP	x		
Chhorn Kea	2006031002	Chumpu Proeks	Chumpu Proeks	Odongk	KSP	x		
Vann Phoat	2006031003	Chumpu Proeks	Chumpu Proeks	Odongk	KSP	x		
Hoeurn Socheat	2006031004	Chumpu Proeks	Chumpu Proeks	Odongk	KSP	x		
Yen Phin	2006031006	Chumpu Proeks	Chumpu Proeks	Odongk	KSP	x		
Nheng Leakhena	2006031021	Chumpu Proeks	Chumpu Proeks	Odongk	KSP	x		
Chhuon Soeun	2006031022	Chumpu Proeks	Chumpu Proeks	Odongk	KSP	x		
Pon Sok Yen	2006031024	Chumpu Proeks	Chumpu Proeks	Odongk	KSP	x		
Yen Tin	2006031005	Chumpu Proeks	Chumpu Proeks	Odongk	KSP		x	
Chhom Se	2006031023	Chumpu Proeks	Chumpu Proeks	Odongk	KSP		x	
Phan Pen	2006031025	Chumpu Proeks	Chumpu Proeks	Odongk	KSP		x	
Tel Yun	2006031026	Chumpu Proeks	Chumpu Proeks	Odongk	KSP		x	
Eam Sokra	2006031007	Chumpu Proeks	Chumpu Proeks	Odongk	KSP			x
Chhlong Shem	2006031008	Chumpu Proeks	Chumpu Proeks	Odongk	KSP			x
Koat Sum	2006031027	Chumpu Proeks	Chumpu Proeks	Odongk	KSP			x
Hor Sokhoeun	1991030606	Kraing Snoul	Pneay	Samraong Tong	KSP	x		
Sath Thorn	1988030621	Kraing Snoul	Pneay	Samraong Tong	KSP	x		
Ly Soklim	1985030622	Kraing Snoul	Pneay	Samraong Tong	KSP	x		
Prak Yath	1982030623	Kraing Snoul	Pneay	Samraong Tong	KSP	x		
Chhin Sen	1979030624	Kraing Snoul	Pneay	Samraong Tong	KSP	x		
Haur Savy	1973030626	Kraing Snoul	Pneay	Samraong Tong	KSP	x		
Im Thary	2006030601	Kraing Snoul	Pneay	Samraong Tong	KSP		x	
Meach Lin	2003030602	Kraing Snoul	Pneay	Samraong Tong	KSP		x	
Chea Kim Tuon	1976030625	Kraing Snoul	Pneay	Samraong Tong	KSP		x	
Touch Kim Lon	2000030603	Kraing Snoul	Pneay	Samraong Tong	KSP		x	
Bun Sinath	1997030604	Kraing Snoul	Pneay	Samraong Tong	KSP		x	
Khath Tieng	1994030605	Kraing Snoul	Pneay	Samraong Tong	KSP		x	
Chun Kunthea	2006030607	Kraing Snoul	Pneay	Samraong Tong	KSP			x
Sim Sitha	2006030627	Kraing Snoul	Pneay	Samraong Tong	KSP			x
Sim Sok Khem	2006030628	Kraing Snoul	Pneay	Samraong Tong	KSP			x
Teung Reth	2006030701	Krang Ta Char	Rung Roeang	Thpong	KSP	x		
Von Sokhoeun	2006030702	Krang Ta Char	Rung Roeang	Thpong	KSP	x		
Chin Mao	2006030703	Krang Ta Char	Rung Roeang	Thpong	KSP	x		
Khut Pring	2006030704	Krang Ta Char	Rung Roeang	Thpong	KSP	x		
Soeun Mom	2006030705	Krang Ta Char	Rung Roeang	Thpong	KSP	x		
Bann Nay	2006030721	Krang Ta Char	Rung Roeang	Thpong	KSP	x		
Sok Eth	2006030724	Krang Ta Char	Rung Roeang	Thpong	KSP	x		
Sin Ly	2006030726	Krang Ta Char	Rung Roeang	Thpong	KSP	x		
Yan Chan Thy	2006030706	Krang Ta Char	Rung Roeang	Thpong	KSP		x	
Phlou Yoeurn	2006030722	Krang Ta Char	Rung Roeang	Thpong	KSP		x	
Liev Ol	2006030723	Krang Ta Char	Rung Roeang	Thpong	KSP		x	
Seang Sokun	2006030725	Krang Ta Char	Rung Roeang	Thpong	KSP		x	
Sat Lun	2006030707	Krang Ta Char	Rung Roeang	Thpong	KSP			x
Ngat Sok Ly	2006030727	Krang Ta Char	Rung Roeang	Thpong	KSP			x

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Horn Pon	2006030728	Krang Ta Char	Rung Roeang	Thpong	KSP			x
Keo Samrong	2006041205	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP	x		
Sun Ly	2006041206	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP	x		
Kheun Khan	2006041221	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP	x		
Kim Dim	2006041222	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP	x		
Ros Phath	2006041226	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP	x		
Rath Yoeung	2006041201	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP		x	
Men Sam Nang	2006041202	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP		x	
Prok Simorn	2006041203	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP		x	
Run Phal	2006041204	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP		x	
Sam Yann	2006041223	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP		x	
Chea Him	2006041224	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP		x	
Sum Boeun	2006041225	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP		x	
Liv Vanthan	2006041207	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP			x
Sam Veun	2006041227	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP			x
Yeum Ron	2006041228	Panhea Aong	Tumpoar Meas	Samraong Tong	KSP			x
Lay Sun	2006041102	Tang Banteay B	Veal Pon	Thpong	KSP	x		
Sorn Sophal	2006041103	Tang Banteay B	Veal Pon	Thpong	KSP	x		
Hem Yon	2006041104	Tang Banteay B	Veal Pon	Thpong	KSP	x		
Suon Phanny	2006041105	Tang Banteay B	Veal Pon	Thpong	KSP	x		
Sao Ren	2006041106	Tang Banteay B	Veal Pon	Thpong	KSP	x		
Long Roeurn	2006041121	Tang Banteay B	Veal Pon	Thpong	KSP	x		
Sor Pov	2006041122	Tang Banteay B	Veal Pon	Thpong	KSP	x		
Yorng Sin	2006041123	Tang Banteay B	Veal Pon	Thpong	KSP	x		
Phal Sim	2006041124	Tang Banteay B	Veal Pon	Thpong	KSP	x		
Nom Nan	2006041125	Tang Banteay B	Veal Pon	Thpong	KSP	x		
Nov Phat	2006041126	Tang Banteay B	Veal Pon	Thpong	KSP	x		
Nov Oll	2006041101	Tang Banteay B	Veal Pon	Thpong	KSP		x	
Thong Thal	2006041107	Tang Banteay B	Veal Pon	Thpong	KSP			x
Seng Theoun	2006041127	Tang Banteay B	Veal Pon	Thpong	KSP			x
Seoung Theng	2006041128	Tang Banteay B	Veal Pon	Thpong	KSP			x
Namm Sokha	2006041302	Tuek Long Pir B	Rong Roeang	Thpong	KSP	x		
Yon Sokha	2006041304	Tuek Long Pir B	Rong Roeang	Thpong	KSP	x		
Hong Khim	2006041305	Tuek Long Pir B	Rong Roeang	Thpong	KSP	x		
Koch Chann	2006041306	Tuek Long Pir B	Rong Roeang	Thpong	KSP	x		
Pon Ron	2006041321	Tuek Long Pir B	Rong Roeang	Thpong	KSP	x		
Mom Say	2006041323	Tuek Long Pir B	Rong Roeang	Thpong	KSP	x		
Sieng So	2006041324	Tuek Long Pir B	Rong Roeang	Thpong	KSP	x		
Pouk Pov	2006041326	Tuek Long Pir B	Rong Roeang	Thpong	KSP	x		
Chin Pov	2006041301	Tuek Long Pir B	Rong Roeang	Thpong	KSP		x	
Poung Sok	2006041303	Tuek Long Pir B	Rong Roeang	Thpong	KSP		x	
Lonh Ream	2006041325	Tuek Long Pir B	Rong Roeang	Thpong	KSP		x	
Chim Chun	2006041322	Tuek Long Pir B	Rong Roeang	Thpong	KSP		x	
Sak Kem	2006041307	Tuek Long Pir B	Rong Roeang	Thpong	KSP			x
Sann Preum	2006041327	Tuek Long Pir B	Rong Roeang	Thpong	KSP			x
Ly Yeng	2006041328	Tuek Long Pir B	Rong Roeang	Thpong	KSP			x

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Moul Ry	2006052301	Trapeang Antong	Chant Saen	Odongk	KSP	x		
Chres Khom	2006052302	Trapeang Antong	Chant Saen	Odongk	KSP	x		
Sor Sarun	2006052304	Trapeang Antong	Chant Saen	Odongk	KSP	x		
Bean Sean	2006052305	Trapeang Antong	Chant Saen	Odongk	KSP	x		
Hum Sos	2006052306	Trapeang Antong	Chant Saen	Odongk	KSP	x		
Boeurn Thim	2006052321	Trapeang Antong	Chant Saen	Odongk	KSP	x		
Pheng Poy	2006052322	Trapeang Antong	Chant Saen	Odongk	KSP	x		
Muon Keav	2006052324	Trapeang Antong	Chant Saen	Odongk	KSP	x		
Hok Phalla	2006052325	Trapeang Antong	Chant Saen	Odongk	KSP	x		
Yea Pov	2006052326	Trapeang Antong	Chant Saen	Odongk	KSP	x		
Soem On	2006052303	Trapeang Antong	Chant Saen	Odongk	KSP		x	
Keo Thol	2006052323	Trapeang Antong	Chant Saen	Odongk	KSP		x	
Sab Nha	2006052307	Trapeang Antong	Chant Saen	Odongk	KSP			x
Naim Chantheoun	2006052327	Trapeang Antong	Chant Saen	Odongk	KSP			x
Som Nga	2006052328	Trapeang Antong	Chant Saen	Odongk	KSP			x
Chim Reum	2006032301	Buor Srangae	Trapeang Chong	Bakan	PST	x		
Chev Nath	2006032302	Buor Srangae	Trapeang Chong	Bakan	PST	x		
Sok Rorng	2006032303	Buor Srangae	Trapeang Chong	Bakan	PST	x		
SENG Sokha	2006032304	Buor Srangae	Trapeang Chong	Bakan	PST	x		
Chhorn Mao	2006032306	Buor Srangae	Trapeang Chong	Bakan	PST	x		
Ny Kunthear	2006032322	Buor Srangae	Trapeang Chong	Bakan	PST	x		
Chheum Ly	2006032324	Buor Srangae	Trapeang Chong	Bakan	PST	x		
Noung Ren	2006032326	Buor Srangae	Trapeang Chong	Bakan	PST	x		
Yeum Kheum	2006032305	Buor Srangae	Trapeang Chong	Bakan	PST		x	
Nob Hoeun	2006032325	Buor Srangae	Trapeang Chong	Bakan	PST		x	
Sok Sameth	2006032321	Buor Srangae	Trapeang Chong	Bakan	PST		x	
Mom Muth	2006032323	Buor Srangae	Trapeang Chong	Bakan	PST		x	
Vet Khorn	2006032307	Buor Srangae	Trapeang Chong	Bakan	PST			x
Sen Oeun	2006032327	Buor Srangae	Trapeang Chong	Bakan	PST			x
Oeur Yoeur	2006032328	Buor Srangae	Trapeang Chong	Bakan	PST			x
Khloth Khom	2006050401	Kampeaeng	Prongil	Phnum Kravanh	PST	x		
Sin Heng	2006050405	Kampeaeng	Prongil	Phnum Kravanh	PST	x		
DOEUN Khen	2006050423	Kampeaeng	Prongil	Phnum Kravanh	PST	x		
Nuth Kim	2006050402	Kampeaeng	Prongil	Phnum Kravanh	PST		x	
TONG Chhoeun	2006050403	Kampeaeng	Prongil	Phnum Kravanh	PST		x	
CHHUON Chhan	2006050404	Kampeaeng	Prongil	Phnum Kravanh	PST		x	
Chhun Kheang	2006050406	Kampeaeng	Prongil	Phnum Kravanh	PST		x	
Cham Sinath	2006050421	Kampeaeng	Prongil	Phnum Kravanh	PST		x	
HOR Chea	2006050422	Kampeaeng	Prongil	Phnum Kravanh	PST		x	
VAN Nam	2006050424	Kampeaeng	Prongil	Phnum Kravanh	PST		x	
Sao Sum	2006050425	Kampeaeng	Prongil	Phnum Kravanh	PST		x	
Khan Choeun	2006050426	Kampeaeng	Prongil	Phnum Kravanh	PST		x	
Khut Keun	2006050407	Kampeaeng	Prongil	Phnum Kravanh	PST			x
Khut Kan	2006050427	Kampeaeng	Prongil	Phnum Kravanh	PST			x
Bun Yun	2006050428	Kampeaeng	Prongil	Phnum Kravanh	PST			x
LY Srey Rat	2003032101	Kandal	Phteah Rung	Phnum Kravanh	PST	x		

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Nouy Thy	2003032104	Kandal	Phteah Rung	Phnum Kravanh	PST	x		
Chhum Kav	2003032105	Kandal	Phteah Rung	Phnum Kravanh	PST	x		
KEO Thy	2003032106	Kandal	Phteah Rung	Phnum Kravanh	PST	x		
YOUM Chan	2003032121	Kandal	Phteah Rung	Phnum Kravanh	PST	x		
Hem Ra	2003032124	Kandal	Phteah Rung	Phnum Kravanh	PST	x		
CHEM Ngek	2003032126	Kandal	Phteah Rung	Phnum Kravanh	PST	x		
Peang Muon	2003032102	Kandal	Phteah Rung	Phnum Kravanh	PST		x	
PHACH Kok	2003032103	Kandal	Phteah Rung	Phnum Kravanh	PST		x	
NOUN Met	2003032125	Kandal	Phteah Rung	Phnum Kravanh	PST		x	
Moeun Thoeun	2003032123	Kandal	Phteah Rung	Phnum Kravanh	PST		x	
Yun Ki	2003032122	Kandal	Phteah Rung	Phnum Kravanh	PST		x	
Say Phy	2006032107	Kandal	Phteah Rung	Phnum Kravanh	PST			x
Dy Ly	2006032108	Kandal	Phteah Rung	Phnum Kravanh	PST			x
Sok Vun	2006032127	Kandal	Phteah Rung	Phnum Kravanh	PST			x
SOU Yorn	2006050301	Prey Smach	Rokat	Phnum Kravanh	PST	x		
TUOCH Sarun	2006050302	Prey Smach	Rokat	Phnum Kravanh	PST	x		
PHUN Kosal	2006050303	Prey Smach	Rokat	Phnum Kravanh	PST	x		
THOANG Thavy	2006050306	Prey Smach	Rokat	Phnum Kravanh	PST	x		
PORK Suon	2006050322	Prey Smach	Rokat	Phnum Kravanh	PST	x		
HIM Dorn	2006050324	Prey Smach	Rokat	Phnum Kravanh	PST	x		
CHHAN Siek	2006050326	Prey Smach	Rokat	Phnum Kravanh	PST	x		
SHORN Shi Tha	2006050304	Prey Smach	Rokat	Phnum Kravanh	PST		x	
HAS Ngorn	2006050305	Prey Smach	Rokat	Phnum Kravanh	PST		x	
SEN It	2006050325	Prey Smach	Rokat	Phnum Kravanh	PST		x	
CHOEM Shim	2006050323	Prey Smach	Rokat	Phnum Kravanh	PST		x	
THACH Sok	2006050321	Prey Smach	Rokat	Phnum Kravanh	PST		x	
Khut Vorn	2006050307	Prey Smach	Rokat	Phnum Kravanh	PST			x
Meas Sinuon	2006050327	Prey Smach	Rokat	Phnum Kravanh	PST			x
Bo Ty	2006050328	Prey Smach	Rokat	Phnum Kravanh	PST			x
POR Ek	2006032201	Prey Srakum	Sya	Kandieng	PST	x		
PEN Khear	2003032202	Prey Srakum	Sya	Kandieng	PST	x		
BOY Heat	2000032203	Prey Srakum	Sya	Kandieng	PST	x		
PHY Eam	1994032205	Prey Srakum	Sya	Kandieng	PST	x		
PHE Lang	1988032221	Prey Srakum	Sya	Kandieng	PST	x		
ROS Ky	1997032204	Prey Srakum	Sya	Kandieng	PST		x	
BUOY Orn	1991032206	Prey Srakum	Sya	Kandieng	PST		x	
KHAT Chrach	1973032226	Prey Srakum	Sya	Kandieng	PST		x	
EM Hoy	1985032222	Prey Srakum	Sya	Kandieng	PST		x	
TEP Thou	1982032223	Prey Srakum	Sya	Kandieng	PST		x	
LUY Thy	1979032224	Prey Srakum	Sya	Kandieng	PST		x	
ROS Koeun	1976032225	Prey Srakum	Sya	Kandieng	PST		x	
Ek Heap	2006032207	Prey Srakum	Sya	Kandieng	PST			x
Un Phuy	2006032227	Prey Srakum	Sya	Kandieng	PST			x
Cheut Meut	2006032228	Prey Srakum	Sya	Kandieng	PST			x
Tab Pov	2006050501	Snay Toul	Trapeang Chong	Bakan	PST	x		
Prum Nam	2006050504	Snay Toul	Trapeang Chong	Bakan	PST	x		

Random Client in each village	Questionnaire #	Village	Commune	District	Province	Client	Client Replacement	Non Client
Chhem Saroeun	2006050505	Snay Toul	Trapeang Chong	Bakan	PST	x		
Khlong Touch	2006050522	Snay Toul	Trapeang Chong	Bakan	PST	x		
Hoon Ngeot	2006050523	Snay Toul	Trapeang Chong	Bakan	PST	x		
Yorng Yoeum	2006050525	Snay Toul	Trapeang Chong	Bakan	PST	x		
Srey Yoeung	2006050526	Snay Toul	Trapeang Chong	Bakan	PST	x		
Pech Mak	2006050502	Snay Toul	Trapeang Chong	Bakan	PST		x	
HANG Thy	2006050503	Snay Toul	Trapeang Chong	Bakan	PST		x	
Tith Pock	2006050506	Snay Toul	Trapeang Chong	Bakan	PST		x	
Tong Teng	2006050521	Snay Toul	Trapeang Chong	Bakan	PST		x	
Yong Samath	2006050524	Snay Toul	Trapeang Chong	Bakan	PST		x	
Vomg Som	2006050507	Snay Toul	Trapeang Chong	Bakan	PST			x
Pech My	2006050527	Snay Toul	Trapeang Chong	Bakan	PST			x
Lou Vy	2006050528	Snay Toul	Trapeang Chong	Bakan	PST			x
Choem Nguon	2006032001	Toul Thma	Ta Lou	Bakan	PST	x		
Nuy Phatt	2006032002	Toul Thma	Ta Lou	Bakan	PST	x		
DAV Phon	2006032004	Toul Thma	Ta Lou	Bakan	PST	x		
SEM Ton	2006032021	Toul Thma	Ta Lou	Bakan	PST	x		
OTH Yet	2006032023	Toul Thma	Ta Lou	Bakan	PST	x		
Sem Sokh	2006032024	Toul Thma	Ta Lou	Bakan	PST	x		
HIN Yong	2006032026	Toul Thma	Ta Lou	Bakan	PST	x		
MENG San	2006032003	Toul Thma	Ta Lou	Bakan	PST		x	
SUN Tha	2006032005	Toul Thma	Ta Lou	Bakan	PST		x	
Torch Ny	2006032006	Toul Thma	Ta Lou	Bakan	PST		x	
AUTH Yon	2006032022	Toul Thma	Ta Lou	Bakan	PST		x	
Vong Phanna	2006032025	Toul Thma	Ta Lou	Bakan	PST		x	
Samret Oul	2006032007	Toul Thma	Ta Lou	Bakan	PST			x
Lon Sophea	2006032027	Toul Thma	Ta Lou	Bakan	PST			x
Rean Chreoun	2006032028	Toul Thma	Ta Lou	Bakan	PST			x
PRIN Ra	2006042601	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP	x		
BOS Doeun	2006042602	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP	x		
THIM Eat	2006042603	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP	x		
TUN Sa Moeun	2006042605	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP	x		
REM Chinda	2006042606	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP	x		
SO Ang	2006042621	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP	x		
PRIEM Bet	2006042622	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP	x		
PIT Lay	2006042624	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP	x		
NHOR Nhet	2006042625	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP	x		
YOEUN Ni	2006042626	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP	x		
BOEUNG Tha	2006042604	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP		x	
THAING Sa Voeun	2006042623	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP		x	
Reth Reun	2006042607	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP			x
Rem Seok	2006042627	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP			x
Dam Ma	2006042628	Phum Anlong	Khum Ta Aan	Srok Krolanh	SRP			x
HING Sa Rom	2006042501	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP	x		
YORM Yon	2006042503	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP	x		
CHHANN Tuot	2006042504	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP	x		

Random Client in each village	Questionnaire #	Village	Commune	District	Province	Client	Client Replacement	Non Client
OEUN Chhoy	2006042505	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP	x		
Mrs.SHIN Lun	2006042506	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP	x		
Mrs.YET Shin	2006042521	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP	x		
Mrs.YORNG Siem	2006042522	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP	x		
CHEAM Yun	2006042526	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP	x		
SROEB Noeuk	2006042502	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP		x	
HEM Phean	2006042523	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP		x	
PUP Koeng	2006042524	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP		x	
BUNG Phi	2006042525	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP		x	
Hem Lao	2006042507	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP			x
Doung Nan	2006042508	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP			x
Sak Sin	2006042527	Phum Pak Pan	Khum Sasar Sadam	Srok Puok	SRP			x
VITH O'	2006042401	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP	x		
LEAPH Nhet	2006042403	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP	x		
TAK Toeut	2006042404	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP	x		
YAV Yaing	2006042405	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP	x		
SOEUN Vy	2006042406	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP	x		
YAV Yet	2006042423	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP	x		
TAK Phien	2006042424	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP	x		
SOEUN Yann	2006042425	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP	x		
ROEUM Chhoerny	2006042426	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP	x		
MORNG Sang	2006042402	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP		x	
THEAK Thet	2006042421	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP		x	
BIEN Noeut	2006042422	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP		x	
Eaun Sieng	2006042407	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP			x
Oeun San	2006042427	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP			x
Moa Dom	2006042428	Phum Prey Khyang	Khum Krouch Kor	Srok Kralanh	SRP			x
BOENG Kean	2006042701	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP	x		
TAB Sa Rert	2006042703	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP	x		
MUT Tann	2006042704	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP	x		
TEAV Tum	2006042705	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP	x		
MAN Hoeum	2006042706	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP	x		
THLANG Norn	2006042721	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP	x		
MAI Muy	2006042722	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP	x		
LUON Sa Moeuy	2006042723	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP	x		
VY Rie	2006042724	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP	x		
Rat Noun	2006042726	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP	x		
SAO Thi	2006042702	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP		x	
HOK Ha	2006042725	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP		x	
Korb Kern	2006042707	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP			x
Pat Nhann	2006042727	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP			x
Pha Ny	2006042728	Phum Run	Khum Chonloas Dai	Srok Kralanh	SRP			x

Annex 25: Incidence of Replacements

The table below shows the average incidence of replacements by village and by province, confirming the patterns previously identified.

27 Villages (Prpnal to size by Province: 9BMC, 2BTB, 7KSP, 6PST, 3SRP)	Commune	District	Pro_vin_ce	Incidence Replacement Interviewee %	Provincial Aveages	Sithon %	Sophy %
Boeng Veng	Ta Lom	Mongkol Borey	BMC	25%		100%	0%
Kok Lun	Chup Vary	Preah Neak Preah	BMC	42%		60%	40%
Prey Changha Lich	Banteay Neang	Mongkol Borey	BMC	8%		100%	0%
Ta Trai	Kokathen	Thmar Pouk	BMC	33%		75%	25%
Chhouk	Makak	Serey Sophoan	BMC	17%		0%	100%
Tanorng	Koy Meng	Mongkol Borey	BMC	17%		50%	50%
Andong Khlong	Banteay Chmar	Thmar Pouk	BMC	42%		40%	60%
Svay Sor II	Pon Ley	Phnom Srock	BMC	17%		50%	50%
Poy Snuol	Poy char	Phnom Srok	BMC	8%		0%	100%
Phav Thmey	Kok Balang	Mongkol Borey	BMC	50%		50%	50%
BMC					**26%**		
CHHOUNG Tradak	Roka	Sangke	BTB	33%		75%	25%
Chrey I	Chrey	Moung Russey	BTB	33%		50%	50%
BTB					**33%**		
Trapaing Antong	Chan Seng	Oudong	KSP	17%		50%	50%
Chumpuo Preuk	Chumpuo Preuk	Oudong	KSP	33%		75%	25%
Taing Banteay B	Veal Pun	T'pong	KSP	8%		0%	100%
Phnear Orng	Tumpor Meas	Samrong Tong	KSP	58%		43%	57%
Kraing Snoul	Pneay	Somrongtong	KSP	50%		17%	83%
Kraing Tachor	Rong Roeung	Thpong	KSP	33%		75%	25%
Teuk Long IIB	Rong Roeung	Thpong	KSP	33%		50%	50%
KSP					**33%**		
Toul Thmor	Talo	Bakan	PST	42%		40%	60%
Kandal	Phteah Rong	Kravanh	PST	42%		60%	40%
Prey Srokum	Chsa	Kandieng	PST	58%		71%	29%
Buor Srange	Trapeang Chong	Bakan	PST	33%		75%	25%
Prey Smach	Ror Kat	Phnom Kra Vanh	PST	42%		60%	40%
Kampeng	Pro Nill	Phnom Kravanh	PST	75%		56%	44%
Snay Toul	Trapeang Chong	Bakan	PST	42%		40%	60%
PST					**48%**		
Phum Prie Kchorng	Khum Krouch Kor	Srok Kro Lanh	SRP	25%		67%	33%
Phum Pak Pann	Khum Sorso Sdom	Srok Puok	SRP	33%		75%	25%
Phum Anlung	Khum Ta An	Srok Kro Lanh	SRP	17%		50%	50%
Phum Run	Khum Chonleas Dai	Srok Kro Lanh	SRP	17%		50%	50%
SRP					**23%**		
Total Incidence Replacements					**33%**	**57%**	**43%**

Annex 26: Household Questionnaire

Please see following pages

1. Questionnaire number: _____ **5**. Date: _____
2.a. Time started: _____ **2.b.** Time finished: _____
3.a. Interviewer(s): _____ **3.b.** Supervisor : _____
4. Location **4.a.** Minutes from branch to location: _____ **CODES LOCATION**
4.b. Code Village ☐☐☐☐☐☐☐☐ **4.c.**Commune ☐☐☐☐☐☐ **4.d.**District ☐☐☐ **4.e.**Province ☐☐ .

MIScodeLink_____
Name: _____

*Introduce yourself, TRAM/AMK and the purpose of your visit -- [*Notes]*

A. INDIVIDUAL and HOUSEHOLD (HH) INFORMATION

A.1. AMK client?	**A.2.1** Month joined AMK	**A.2.2.** Year joined AMK	**A.3.** Number of cycles	**A.4.1.** # of persons in HH who earned income over last 12 months.	**A.4.2.*** Gender of primary income earner
y / n					M / F / B

A5 ID #	**A.6.*** Relation to HH head [cycle]	**A.7. *** Gender	**A.8.** Age	*Only if age >=14* **A.9.*** Marital Status	*Only if age >=14* **A.10.** Can read & write a letter?	*Only if 6-18* **A.11. *** Is child in school?	**A.12.*** Highest Educ.Fin	**A.13.*** Clothing & footwear expenses last 12 months.	**A.14.** AMK Client
	h / s / c / p / ss/ gc / o	M / F		s / m / msm / d / w	y / n	y / n		R_____	☐.
	h / s / c / p / ss/ gc / o	M / F		s / m / msm / d / w	y / n	y / n		R_____	☐.
	h / s / c / p / ss/ gc / o	M / F		s / m / msm / d / w	y / n	y / n		R_____	☐.
	h / s / c / p / ss/ gc / o	M / F		s / m / msm / d / w	y / n	y / n		R_____	☐.
	h / s / c / p / ss/ gc / o	M / F		s / m / msm / d / w	y / n	y / n		R_____	☐.
	h / s / c / p / ss/ gc / o	M / F		s / m / msm / d / w	y / n	y / n		R_____	☐.
	h / s / c / p / ss/ gc / o	M / F		s / m / msm / d / w	y / n	y / n		R	☐.
	h / s / c / p / ss/ gc / o	M / F		s / m / msm / d / w	y / n	y / n		R	☐.
	h / s / c / p / ss/ gc / o	M / F		s / m / msm / d / w	y / n	y / n		R	☐.
	h / s / c / p / ss/ gc / o	M / F		s / m / msm / d / w	y / n	y / n		R	☐.
	h / s / c / p / ss/ gc / o	M / F		s / m / msm / d / w	y / n	y / n		R	☐.
	h / s / c / p / ss/ gc / o	M / F		s / m / msm / d / w	y / n	y / n		R	☐.
	h / s / c / p / ss/ gc / o	M / F		s / m / msm / d / w	y / n	y / n		R	☐.

B. HOUSEHOLD INFLOWS in the past 12 MONTHS

1. During the past 12 months, what were the major income earning activities and inflows in this HH (inc. food production or collection of CPR and gifts or remittances received from friends/relatives /NGOs/others)?	**1.**☑/--	**2. For consumption**	**3.For Cash**	**4. Rank 1 to 3 (more cash per year)**	**ONLY FOR THOSE 3 RANKED IN B.4 Months receiving cash income 5.6.7.8.9.10.11.12.13.14.15.16**
B.1.1. Farm: Rice **cropping**					1 2 3 4 5 6 7 8 9 10 11 12
B.1.2. Farm: Non-rice, chamkar & veget.**cropping**					1 2 3 4 5 6 7 8 9 10 11 12
B.1.3. Farm: Fruit **cropping**					1 2 3 4 5 6 7 8 9 10 11 12
B.2.1. Farm: Pig **raising**					1 2 3 4 5 6 7 8 9 10 11 12
B.2.2. Farm: Poultry (Chicken or Duck) **raising**					1 2 3 4 5 6 7 8 9 10 11 12
B.2.3. Farm: Cow or Buffalo **raising**					1 2 3 4 5 6 7 8 9 10 11 12
B.3.1. Farm: Fishing/aquaculture (eels, fish, etc)					1 2 3 4 5 6 7 8 9 10 11 12
B.3.2. Farm: Wood collection					1 2 3 4 5 6 7 8 9 10 11 12
B.3.3. Farm: Other Common Property Resource (**CPR**)*					1 2 3 4 5 6 7 8 9 10 11 12
B.4.1. Casual/part time **local labor** (agri + non-agri)					1 2 3 4 5 6 7 8 9 10 11 12
B.4.2. Temporary **migration** (domestic, int'al)					1 2 3 4 5 6 7 8 9 10 11 12
B.4.3. Regular **salary** - civil service					1 2 3 4 5 6 7 8 9 10 11 12
B.4.4. Regular **salary** - factory/services wage					1 2 3 4 5 6 7 8 9 10 11 12
B.5.1.* Manufacturing - Code 510 = Food processing					1 2 3 4 5 6 7 8 9 10 11 12
Code 511 = Rice alcohol & other beverages					1 2 3 4 5 6 7 8 9 10 11 12
Code 512 = Textiles					1 2 3 4 5 6 7 8 9 10 11 12
Code 513 = Handicrafts					1 2 3 4 5 6 7 8 9 10 11 12
Code 514 = Thatch or mats					1 2 3 4 5 6 7 8 9 10 11 12
Code 515 = Others [specify]_____					1 2 3 4 5 6 7 8 9 10 11 12
B.6.1.* Services – Code 610 = Petty trade or petty grocery					1 2 3 4 5 6 7 8 9 10 11 12
Code 611 = Transport					1 2 3 4 5 6 7 8 9 10 11 12
Code 612 = Sales in shops/stalls					1 2 3 4 5 6 7 8 9 10 11 12
Code 613 = Grooming (hairdresser, clean serv)					1 2 3 4 5 6 7 8 9 10 11 12
Code 614 = Ceremonies planner & Entertainment					1 2 3 4 5 6 7 8 9 10 11 12
Code 615 = Others [specify]_____					1 2 3 4 5 6 7 8 9 10 11 12
B.7.1. Remittances or gifts (domestic, int'al)					1 2 3 4 5 6 7 8 9 10 11 12
B.8.1.* Other inflows Code 810=Rental or provas (owned)					1 2 3 4 5 6 7 8 9 10 11 12
Code 811 = Asset sales (inc. land sale)					1 2 3 4 5 6 7 8 9 10 11 12
Code 812 = Assets Pawned					1 2 3 4 5 6 7 8 9 10 11 12
Code 813 = Rental or provas (used)					1 2 3 4 5 6 7 8 9 10 11 12
Code 814 = Loans received					1 2 3 4 5 6 7 8 9 10 11 12
Code 815 = Inflow back from loan given					1 2 3 4 5 6 7 8 9 10 11 12
Code 816 = Other inflows [specify]_____					1 2 3 4 5 6 7 8 9 10 11 12

C. HOUSEHOLD OUTFLOWS in the past 12 MONTHS

1. Rank the 3 principal ways you used your money in the last 12 months, tell me the one you used most money for, first]	← 1.Rank 1-3 [do not read options]	2.☑/ - [Probe]	ONLY FOR THOSE 3 RANKED IN C.1 Months where expenses occur 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14.
C.1. Food			1 2 3 4 5 6 7 8 9 10 11 12
C.2. Clothing			1 2 3 4 5 6 7 8 9 10 11 12
C.3. School expenses and schooling			1 2 3 4 5 6 7 8 9 10 11 12
C.4. Medicine, doctors or healers and health related costs			1 2 3 4 5 6 7 8 9 10 11 12
C.5. Inputs for agricultural crops (fertilizer, pesticides, labor, etc)			1 2 3 4 5 6 7 8 9 10 11 12
C.6. Inputs for animal raising (animals + feed + vaccine + etc.) or CPR			1 2 3 4 5 6 7 8 9 10 11 12
C.7. Re-invest in or inputs for **other non-farm** income activity			1 2 3 4 5 6 7 8 9 10 11 12
C.8. Pay loan principal and interests *[ask separately if necessary]*			1 2 3 4 5 6 7 8 9 10 11 12
C.9. Ceremonies, festivals, wat, gifts, bride-price, leisure, social events			1 2 3 4 5 6 7 8 9 10 11 12
C.10. Buying land			1 2 3 4 5 6 7 8 9 10 11 12
C.11. Buying households materials/equipment +durable assets			1 2 3 4 5 6 7 8 9 10 11 12
C.12. Buying gold or jewelry			1 2 3 4 5 6 7 8 9 10 11 12
C.13. Other [specify]:_____			1 2 3 4 5 6 7 8 9 10 11 12

D. HOUSEHOLD EXPENSES: (inc. Monthly Food Expense Estimate)

D.1.1. To support your household during a normal (average) day this month, how much do you normally spend *each day* for **buying food**? [Include value of barter, if any]	R_____day
D.1.2. For example, what did you spend *yesterday*? [include value of barter, if any]	R_____day
D.1.3. Now, let us turn to what you spent on an average week during the past 12 months, how much does your household usually spend *per week* for **buying food**? [include also value of barter]	R_____week
D.2.1. How much rice did this HH produced in the last 12 months (rice yield)?	_____Kg
D.2.2. Of this yearly rice yield during the last 12 months, how much rice has this household sold?	_____Kg
D.2.3. What is the market **value of the rice** that this household has consumed (instead of selling it) *per year*?	R_____year
D.3. Over the last 12 months, how many **months** did you have to **buy rice** for your household consumption?	_____ months
D.4. What is the value of **other food** that your household has **produced** on your farm/garden during the last 12 months and that has consumed (instead of selling it) *per year*? *[Verify with B.1.2 , B.1.3 & B.2]*	R_____year
D.5. What is the value of **other food** that your household has **gathered, collected or fished** from the forest or river/pond/lake and that has consumed (instead of selling it) *per year*? *[Verify w/ B.3.1&B.3.3]*	R_____year
D.6. Considering the preparations for Khmer New Year during the last 2 years, in how many years did you buy new clothes for **ALL** members of the household including children? *[Verify with A.13]*	_____years

D.7. Comparing all your income and all your expenses, "is there leftover to save"? Y / N — D.7.1... **If Yes** How did you save?

1 = In cash (kept on hand) 3 = bought land 5 = provide loan to others 7 = other [specify]: _____
2 = In gold 4 = bought other assets 6 = kept in bank or MFI

E. HOUSEHOLD ASSETS

E.1. **If there was agricultural activity** (If yes to B1, B2 or B3 or B.8.1=810). How much cultivable land do you own?

Plot #	Area of the Plot	Value*:	Plot #	Area of the Plot	Value*:
	_____ m2 / Are / Ha /Rai	R / $ / Chi / Damloeng		_____ m2 / Are / Ha /Rai	R / $ / Chi / Damloeng
	_____ m2 / Are / Ha /Rai	R / $ / Chi / Damloeng		_____ m2 / Are / Ha /Rai	R / $ / Chi / Damloeng
	_____ m2 / Are / Ha /Rai	R / $ / Chi / Damloeng		_____ m2 / Are / Ha /Rai	R / $ / Chi / Damloeng

E.2. How many large animals do you own at present? [Ignore poultry]
1= buffalo #:_____ 2= cows #:_____ 3 = pigs #:_____ 4 = goat/sheep #:_____

E.3.1. Type of floor
1= Mud floor or rudimentary stilts
2= On wooden/stone stilts
3= Cement base/expensive wood stilts

E.3.2. Type of roof
1= thatch/leaves
2= tin/zinc sheets
3= tiles / other good materials

E.3.3. Type of walls
1= bamboo /thatch
2= low quality wood/logs
3= brick / cement / high quality wood

E.3.4. Size of the house
_____m x _____ m=
_____m2

E.4. *Relatively Modest Value (<$100)*
1= Radio or tape player
2= Plow+harrow / palm-sugar tools / equivalent
3= Television (b/w)
4= Bicycle
5= Ox-cart
6= Boat (simple)
7 =Other _____

E.5. *Mid-range Value ($100-$500)*
1= Expensive tools, e.g. carpentry
2= Boat (expensive boat)
3= Water pump
4= Rice mill machine
5= Generator
6= Mobile phone
7= Other_____

E.6. *High-range Value (>$500)*
1= Motorcycle
2= Plowing/ threshing machine ['electric cow']
3= Car/ pick-up/truck
4= Tractor
5= (Big) Karaoke
6= Other _____7= Other

E.7. What type of toilet facility is available?
1. Bush, field, no facility
2. Shared pit toilet/latrine
3. Own pit toilet / latrine
4. Flush toilet

F. LOAN and INDEBTEDNESS INFORMATION

F.1. How much money does this household owe at this moment? (include all HH members) R_____

F.2. How much of this total money do you owe to AMK? R_____

F.3. Money owned to other credit providers [**F.1 - F.2**] R_____ | **F.4.** How many loans are not fully repaid today? #_____

LOAN Information (all currently outstanding loans, from largest to smallest, repeat AMK loans F5 to F.10]	**1. Largest loan #1**	**2. Medium loan # 2**	**3. Small loan # 3**
F.5. Amount / size of loan	R	R	R
F.6. Monthly interest rate (%)			
F.7. From what source? 1 =Moneylender (cash)	1	1	1
2=Trader (moneylender in-kind, paddy or rice)	2	2	2
3 = Relatives or close friends	3	3	3
4 = ACLEDA/Other bank	4	4	4
5= AMK	5	5	5
6 = Other MFI/MFO [specify]	6:_____	6:_____	6:_____
7 = Other NGO or Other [specify]:	7:_____	7:_____	7:_____
F.8. Term of loan	____months	____months	____months
F.9. Did you face or are you facing any difficulty repaying your loan?	y / n	y / n	y / n
If yes, **F.9.1.** What caused your repayment problems? *[Do not read answers]*	[*Probe*]	[*Probe*]	[*Probe*]
1 = Enterprise problems (no profits in activity, animal died, problem w/sales on credit)	1	1	1
2 = Illnesses in the family	2	2	2
3 = Natural disasters (floods/drought/fire or natural calamity	3	3	3
4 = Other [specify] _____	4:_____	4:_____	4:_____
F.10. In what did you use the loan? What did you buy with it? [Multiple resp. possible]	*[Probe+Amount]*	*[Probe+Amou]*	*[Probe+Amou]*
1= Inputs for **agriculture** (rice, other crop/fruit production)	1 [R_____]	1 [R_____]	1 [R_____]
2= **Animals** or inputs for animal raising (pig, duck, chicken, cow, buffalo)	2 [R_____]	2 [R_____]	2 [R_____]
3= Inputs for **fishing, wood** collection or other CPR	3 [R_____]	3 [R_____]	3 [R_____]
4= Inputs **manufacturing** (food processing, textile, crafts, rice alcohol, palm sugar)	4 [R_____]	4 [R_____]	4 [R_____]
5= Inputs for **petty trade or petty grocery**	5 [R_____]	5 [R_____]	5 [R_____]
6= Inputs for other **services** (transport, grocery shop, food stalls, clean, hairdress)	6 [R_____]	6 [R_____]	6 [R_____]
7= Costs of migration or costs of securing job/salary	7 [R_____]	7 [R_____]	7 [R_____]
8= Buy land	8 [R_____]	8 [R_____]	8 [R_____]
9= Buy house (house materials) or other **assets** (including small household items)	9 [R_____]	9 [R_____]	9 [R_____]
10= Buy gold or jewelry	10 [R_____]	10 [R_____]	10 [R_____]
11= Pay existing debt / **repay other debt**	11 [R_____]	11 [R_____]	11 [R_____]
12= **Give** or loan the **money to someone else**	12 [R_____]	12 [R_____]	12 [R_____]
13= Buy **food**	13 [R_____]	13 [R_____]	13 [R_____]
14= Pay for **health / hospitals** costs	14 [R_____]	14 [R_____]	14 [R_____]
15= **Celebrations, festivals**, gifts or leisure activities ["da leing']	15 [R_____]	15 [R_____]	15 [R_____]
16= Keep money on hand in case of an emergency or to repay the loan	16 [R_____]	16 [R_____]	16 [R_____]
17= Other: [specify] _____:	17[R_____] _____	17[R_____] _____	17[R_____] _____

LOAN Evaluation	**Loan #1**	**Loan # 2**	**Loan # 3**
F.11. Please name **three** things you like **most** about the source of the loan	1= 2= 3=	1= 2= 3=	1= 2= 3=
F.12. Please name **three** things you like **least** about the source of the loan. What things made you unhappy about the source of the loan?	1= 2= 3=	1= 2= 3=	1= 2= 3=

G. HH INCOME and VULNERABILITY INFORMATION

G.1. Over the last 12 months, has your overall **household economic situation**?
[Read answers]
1 = Decreased Greatly
2 = Decreased
3 = Stayed the Same
4 = Increased
5 = Increased Greatly

G.1.1. If **decreased** at all, Why? [**Do not read answers**. Multiple answers possible]
1. Household member (or self) has been sick/died
2. Natural disaster (flood, earthquake).
3. Poor agricultural season (not due to natural disasters)
4. Poor sales (not due to natural disasters)
5. Lost job
6. Unable to get inputs or increased costs in business
7. Could not collect credit due on sales
8. Other [specify] :_____

G.2. I will read 4 choices for your response. Please tell me which statement best describes the food situation in your HH
1 = Often not enough to eat
2 = Sometimes not enough to eat
3 = Enough but not always what we want to eat
4 = Enough and the kinds of food we want to eat

G.3. During the last 12 months, has your household's diet *[Read answers]*
1 = Worsened *[check consistency with* **G.1***]*
2 = Stayed the same
3 = Improved

G.4. Over the last 12 months, was there ever a time when your family ate< 3 meals/day because of a lack of food or money?	0 = No	1 = Yes
G.5. During the last 12 months, was there ever a time when it was necessary for your household to eat less nutritious food (eat worse foods/ less delicious/nutrient foods) because of a lack of food or a lack of money to buy food?	0 = No	1 = Yes

G.6. Over the last 12 months, have you ever faced with any of the following crises or major events?
[**Read** and **circle**]
[Multiple answers possible]
10 = Loss of household member (# of members_____)
11 = Household member very sick or badly injured
12 = Paid bride-price for marrying son
13 = Other family events such as death and funeral, birth
14 = Paid compensation for accident, problem, etc.
20 = Loss of enterprise asset (animal death, shop burned down, theft or being cheated)
21 = Business shutdown or enterprise failure
22 = Household member lost job/wage employment
30 = Crop damage due to food/drought or other natural disaster (earthquake, thunder fire)
31 = Other damage due to food/drought, fire or other natural disaster
32 = Land conflicts or land grabbing

G.7. ☐ If **NO to all** in **G.6.**

G.8. **Only if any YES in G.6**, What did your household do to get through (with) this difficult situation? [**Do not read answers**]
[Multiple answers possible] [Probe if necessary]
10. Spent past savings
20. Borrowed money/gold or food from family/friend at no cost *[Is this from the same sources outlined in* **F.5-F.11***- see below*]
21. Borrowed money/gold or food at cost *[Is this from the same sources outlined in* **F.5-F.11***- if different: from whom, how much, how long, etc…]*
30. Increase existing economic activities or undertake more CPR
31. Rented personal property to others (land, house, cattle, transport, farm or household equipment)
32. Self or someone else in family got local employment (including casual work)
33. Self or someone else in family left area to seek employment (including casual work)
40. Reduce food consumption/eat worse foods/eat less times per day
41. Reduce other non-food expenses (school, clothes, etc)
42. Sold personal property (land, house, cattle, transport, farm or household equipment)
50. Other [specify]:_____

G.9. I will read 3 choices for your response. Please tell me which describes best the situation in this HH about large expenses in the last 12 months
3 = We had *no difficulty* to afford large expenses (plan ahead + save enough)
2 = We had *some difficulty* to afford large expenses
1 = We had *great (a lot) difficulty* to afford large expenses

G.10. I will read 3 choices for your response. Please tell me which describes best your school-age children attending school N/A ☐ I
1 = *None of them* are expected to complete secondary school
2 = *Not all of them* are expected to complete secondary school
3 = We expect *all of them* to complete secondary school

G.11. I will read 4 statements. Please tell me which describes best this HH situation when you need to pay for medicine & healthcare:
1 = We *never* borrow money or sell assets
2 = We *seldom (rarely)* need to borrow money or sell assets
3 = We *often (frequently, regularly)* need to borrow money/sell assets
4 = We *always* need to borrow money or sell assets (difficult)

G.12. I will read 4 choices for your response. Please tell me which best describes your HH in this community where you live…
1 = We have *few* good friends/neighbors [>other village]
2 = We have *some* good friends/neighbors
3 = We have *many* good friends/neighbors
4 = *All* the neighbors here are good friends of ours

G.13. Are you or is someone in your household currently a member of any group, organization or association? [Probe with tongtine, civic group, pagoda group, youth group, farmers/traders group) etc.]	0 = No	1 = Yes

G.14. Is there anything that you want to ask us or anything else that you want to say? Do you have any recommendation for AMK to improve our financial products or our service?

Thank you for your help and patience – we will do our best so that this information helps us in AMK to better serve you!

***NOTES:**

Introduce yourself:

For client households (HHs)

- ✓ Identify yourself and introduce the difference between TRAM and the Credit Officer they know (make sure you know the CO's name before you reach the village)
- ✓ Inform the household of your purpose: "We want to learn from them to create better products and services; we want to improve AMK to better serve them" (please be careful, you do NOT say you want to know whose households are poorer or better-off; this will create biased info: do not mention it)
- ✓ Explain why this household has been selected: "either because they are new clients or because they are old clients with a lot of experience about AMK products."
- ✓ Explain that those people not from this household cannot participate in or listen to the interview. Whether they are close friends, village leaders or elders, they will be asked to leave. This is because we want them to respond freely and not to feel pressured or shy. Only people living in this household can stay during the interview.
- ✓ Assure respondents of confidentiality: "This study and your answers will be collected and kept confidentially within the TRAM department so that nobody can track your particular answers to the results of this study – please answer honestly to the question and help us understand clearly your situation, so that AMK can offer products that better fit your needs"

For non-client HHs introduce yourself and start by asking "Do you know about AMK?" [briefly describe AMK if they do not]. Continue with "We understand that you are not a client, but we want to talk to you to see how AMK financial products and services may be relevant to you and how we can improve them so that they become more useful/relevant to you", explain who can listen to the interview and assure them of confidentiality.

A.2: "Group of individuals **who live together under the same roof and regularly share meals and expenses together (household members share the same food at least once a day)**." Family members away from home are not included unless they are:

(a) Migrant spouse or migrant children that contributes regularly/ substantially to the HH expenses *or*

(b) Children of head of household attending boarding school when the HH fully supports them financially.

A.14: **Expenditures in clothes and shoes for all members of the household during the last 12 months**: Include also second hand and probe by members with time reference points: Khmer New Year, school, plowing /harvest or other celebrations. Do not include gifts, do not include clothes passed by one member to another. If sewn at home, provide costs of all materials: thread, fabrics, buttons, and needles.

B.3.3: Common Property Resources (CPR): Plants and animals collected from the field and forest, including fish and wood. Other CPR include: bamboo, palm leaf, fruits, roots, wild vegetables, frogs, land crabs, birds, snakes, rats or rabbits, etc.

G.4: Refers to meals eaten and not cooked; e.g. a household might eat 3 times a day but cook only twice a day

E.: Household Assets are defined as equipment and durable goods, i.e. goods that last for a long time (some of them could be passed to their children): cultivable land, livestock, house, gold/jewelry, TV or radio, motorcycle, etc

E.1.: When asking the current value of cultivable land ask: "If you were to sell that land today, how much money would you receive for it?"

***CODES:**

Code **A.4.2 &A.7**.	Code **A.6.**	Code **A.9**	Code **A.12**. Highest class passed
M = Male F = Female B = Both	H = Head (self) S = Spouse C = Children (son or daughter+in-laws) P = Parent (father or mother) SS = Single siblings GC = Grandchild O = Grandparent, niece/nephew,others	S = single M = married with the spouse living in the household Msm = married with spouse migrant for more than 6 months/year (only if the migrant spouse supports the household) D = divorced or separated W = widow or widower	0 = No class passed 1-9 = Highest class passed (1 to 6 primary, 7 to 9 secondary) 12 = High School Certificate 15 = Technical diploma/certificate 20 = University degree

Code **B.5.1.**	Code **B.6.1.**	Code **B.8.1.**
510 = Food processing 511 = Rice alcohol & other beverages 512 = Textiles 513 = Handicrafts 514 = Thatch or mats 515 = Others [specify]	610 = Petty trade or petty grocery 611 = Transport 612 = Sales in shops/stalls 613 = Grooming (hairdresser, cleaning serv) 614 = Wedding planners & Entertainment 615 = Others [specify]	810 = Rental or provas (owned) 811 = Asset sales (including land sale) 812 = Assets Pawned 813 = Rental or provas (used) 814 = Loans received 815 = Inflow back from loan given 816 = Other inflows [specify]

Additional Definitions and Notes:

- **Question A.12 →** **Primary:** Grades 1 to 6 (proxy 6 to 12 years old)
  Lower Secondary: Grades 7 to 9 (proxy 13 to 15 years old)
  Upper Secondary: Grades 10 to 12 (proxy 16 to 18 years old)
- **Question B.8.1 → Provas** ("sharing" – whether "sharecropping or "sharelivestocking") is considered a type of rental. There are two main differences between traditional Khmer provas and common rental.
  a) in provas the "rental" is post-paid (i.e. rice is given after harvest or the owner of the cow will get the first calf while the family caring after the cow will get the second calf) while other rental arrangements are usually pre-paid and
  b) in case of a natural calamity, no full payment is expected (at least not in cash) while in the other common rental arrangements, the full amount will be paid regardless of natural calamities or other external forces.
- **Question B.8.1 → Pawning** assets is considered as a "type of sale" (basically, selling at a worse price but it is also cheaper to buy back.
- **Question E.1:** 1 Ha = 10,000 m2 = 100 Ares = 6.25 Rai; 1 Chi = 3.75 gr gold; 1 Damlooeng = 10 Chi
- **Question E.2:** 1 tang = 2 tao = 24 Kg; 1 tao = 12 Kg. Please note that self-suffiency requirement for rice has been estimated at 10 tang (240 Kg) per adult per year and 5 tang (120 Kg) per child per year. (Conway, 1999)
- **Question G.4 → Number of meals per day** refers to meals ate and not cooked; e.g. a household might eat 3 times a day but cook only twice a day.
- Conversions:
  - Gold prices at the end of last quarter of 2005 were. 1 Chi = US$57 → 1 Damloeng = US$570
  - US$ Conversion Rate → 1 US$ = R 4,096 (average of exchange rate form March to May 2006).
    March 2006: 1US$ = 4,095
    April 2006: 1US$ = 4,092
    May 2006: 1US$ = 4,102

Annex 27: Village/Community Questionnaire

TRAM/AMK – Village/Community Questionnaire

Instructions: This interview must be answered by the Credit Officer and / or the Area Manager in charge of the particular village / community where fieldwork has taken place. Introduce yourself, TRAM and the purpose of this survey: "We want to find out the main characteristics of the villages where fieldwork has taken place"

INDENTIFICATION / LOCATION

1. Code Village ☐☐☐☐☐☐☐☐ **1.a.** Commune ☐☐☐☐☐☐ **1.b.** District ☐☐☐☐ **1.c.** Province ☐☐

2.a. Date: _____ **2.b.** Time started: _____ : _____ **2.c.** Time finished: _____ : _____

3.a. Interviewer:_____ **3.b** Supervisor : _____

4.a. Name and function of first respondent _____ CO AM

4.b. Name and function of second respondent _____ CO AM

4.a. Minutes from branch to location: _____minutes **4.a.** Distance in Km from branch to location: _____Km

4.c. Condition of road ☐ Poor / bad ☐ Good ☐ Excellent

CHARACTERISTICS OF THE VILLAGE

A.1. How many households live in this Village?	_____households in the village
A.2. What is the average household size?	_____persons per household
A.3. What is the main economic activity of the majority of households in this village	

	Response (Yes / No)	If YES, specify
A.4. Are there formal MFIs/MFOs operating in the village	y / n	MFI 1_____ MFI 2_____ MFI 3_____ MFI 4_____ MFI 5_____ MFI 6_____ MFI 7_____ MFI 8_____
A.5. Are informal credit/finance (moneylenders, in-kind traders, etc. with more than 10 clients in the village)	y / n	_____households in the village using moneylenders or traders . _____number of moneylenders with more than 10 clients operating in this village? _____number of in-kind traders with more than 10 clients operating in this village?
A.6. Are there people that migrate more than 3 months a year in this village?	y / n	# _____households with members that migrate to other area, province or country more than 3 months per year

Do you have in this village?	Response (Yes / No)	If NO, how far away approx. (Km)?
B.1. Government (District/Provincial) Referral Hospital	y / n	_____Km
B.2. Local Health Center (any type: Gov't, NGO, missionary)	y / n	_____Km
B.3. Private clinic with midwife or traditional (kru) doctor only	y / n	_____Km
B.4. Primary school (any type, i.e. NGO, gov't or private)	y / n	_____Km
B.5. Lower secondary school (any type)	y / n	_____Km
B.6. Upper secondary school (any type)	y / n	_____Km
B.7. Market/ Bazaar / Trading center	y / n	_____Km
B.8. Shop for pesticides, fertilizes and other agro-chemicals	y / n	_____Km
B.9. Livestock/Agricultural extension service / worker	y / n	_____Km
B.10. Access to electricity	y / n	_____Km
B.11. Access to piped drinking water grid	y / n	_____Km
B.12. Access to network for mobile phone	y / n	_____Km

During the past 24 months, did (some) households in this village have access or benefited from ….?	Response (Yes / No)	If YES, what percentage of households benefited in the village? (percent)
D.1. Food for work program	y / n	_____%
D.2. Relief assistance (free food, free seed)	y / n	_____%
D.3. Self Help Groups of any kind (NGO, coop, savings, credit, etc)	y / n	_____%

C.1. In this village crops have been lost due to natural disasters (flood, drought, etc)	☐ *Every year* ☐ *Once in 2-4 years* ☐ *Once in 5-10 years* ☐ *Never*

During the past 5 years, did this village have…?	Response (Yes / No)	If YES, how would you rate its impact on the village? [If the same disaster occurred more than once during the last 5 years, this question refers to the most serious disaster during the past 5 years.]
C.2. Drought/long dry spells (major crops failed)	y / n	☐ Devastating (majority affected) ☐ Serious (half affected) ☐ Manageable damage
C.3. Flooding (major crops failed)	y / n	☐ Devastating ☐ Serious ☐ Manageable damage
C.4. Other natural disasters (e.g. pests, fire, etc)	y / n	☐ Devastating ☐ Serious ☐ Manageable damage
C.5. Other non-natural disasters (e.g. land grabbing, no further access to CPR, etc)	y / n	☐ Devastating ☐ Serious ☐ Manageable damage

Note to interviewer team: Thank the respondents for this interview and clarify all questions they may have about the survey or the TRAM fieldwork.

Annex 28: PCA Theory - Mathematical Summary and Procedure[261]

In simple terms PCA is a very effective data reduction technique. PCA decomposes the information into mathematical data (called loading vectors, factors, principal components, etc.) which represent the most common variations to all the data. A set of scaling coefficients (called scores) for each factor can be calculated for every data set; in other words, PCA reduces data into a smaller set of representative numbers known as scores. When the scores are multiplied by the loading vectors, and the results summed, the original spectra are reconstructed.

The use of PCA allows a number of variables in a multivariate data set to be reduced while keeping as much as possible of the variation present in the original data set. This reduction is achieved by taking p variables $X_1, X_2,\ldots, X_p$ and finding the combinations of these to produce principal components (PCs, also known as "eigenvectors") $PC_1, PC_2,\ldots, PC_p$, which are uncorrelated. This lack of correlation among eigenvectors effectively means that the PCs are measuring different "dimensions" in the data. However the PCs are ordered so that PC_1 exhibits the greatest amount of the variation, PC_2 exhibits the second greatest amount of the variation, PC_3 exhibits the third greatest amount of the variation, and so on. Thus, each "dimension of the data" is ordered according to the amount of variation that exhibits and var $(PC_1) \geq$ var $(PC_2) \geq$ var $(PC_3) \geq\ldots \geq$ var (PC_p), where var (PC_i) expresses the variance of PC_i in the data set being considered and is also called "eigenvalue." In PCA it is hoped that the eigenvalues of most of the PCs will be so low as to be virtually negligible, because then the variation in the data set can be adequately described by means of a few PCs where the eigenvalues are not negligible. Then, the variation in the original number of X variables can be described using a smaller number of new PCs variables.

Procedure for PCA

The analysis is performed on a data set of p variables (X1, X2, … , Xp) for n individuals, as set in the following data matrix table:

Variable / Individual	X_1	X_2	…	X_p
1	X_{11}	X_{12}	…	X_{1p}
2	X_{21}	X_{22}	…	X_{2p}
.	.	.		.
.	.	.		.
.	.	.		.
n	X_{n1}	X_{n2}	…	X_{np}

From this data set, a squared covariance or correlation matrix can be calculated using the following equation:

[261] Summary based on: http://neon.otago.ac.nz/chemlect/chem306/pca/Theory_PCA/index.html

$$\mathrm{Cov}(X_j, X_k) = \frac{\sum_{i=1}^{n}(X_{ij} - \overline{X}_j)(X_{ik} - \overline{X}_k)}{(n-1)}$$

$$\text{where } \overline{X}_j = \frac{\sum_{i=1}^{n} X_{ij}}{n}, \text{ and } j, k = 1, 2, \ldots, p.$$

The covariance matrix then has the following form:

$$S = \begin{bmatrix} s_{11} & s_{12} & s_{13} \ldots & s_{1p} \\ s_{21} & s_{22} & s_{23} \ldots & s_{2p} \\ . & . & . & . \\ . & . & . & . \\ . & . & . & . \\ s_{p1} & s_{p2} & s_{p3} \ldots & s_{pp} \end{bmatrix}$$

where S is the covariance matrix, s_{jk} is the covariance of variables X_j and X_k when $j \neq k$ and the diagonal element $s_{jj}$is the variance of variable X_j when $j = k$.

PCA attempts to find the variances and coefficients of the data set (i.e. the eigenvalues and eigenvectors of the sample correlation matrix). The first principal component (PC_1) is then a linear combination of the original variables $X_1, X_2, \ldots, X_p$,

$$PC_1 = a_{11}X_1 + a_{12}X_2 + a_{13}X_3 + \ldots + a_{1p}X_p = \sum_{j=1}^{p} a_{1j}X_j$$

that varies as much as possible for the individuals, subject to the condition that

$$a_{11}^2 + a_{12}^2 + a_{13}^2 + \ldots + a_{1p}^2 = 1$$

where a_{11} , $a_{12} \ldots$, a_{1p} are coefficients assigned to the original p variables for PC_1.

Therefore, the eigenvalue of PC_1 is as large as possible given this constraint on the constant a_{1j}. The constraint must be imposed in order to avoid the increasing of the eigenvalue of PC_1 by simply increasing one or more of the a_{1j} values.

Similarly, the second principal component,

$$PC_2 = a_{21}X_1 + a_{22}X_2 + a_{23}X_3 + \ldots + a_{2p}X_p,$$

is such that eigenvalues of PC2, is as large as possible subject to the constraint that:

$$a_{21}^2 + a_{22}^2 + a_{23}^2 + \ldots + a_{2p}^2 = 1$$

and also on the condition that PC_2 is uncorrelated with PC_1. The third principal component:

$$PC_3 = a_{31}X_1 + a_{32}X_2 + a_{33}X_3 + \ldots + a_{3p}X_p,$$

is such that the eigenvalue of PC_3 is as large as possible subject to the constraint that:

$$a_{31}^2 + a_{32}^2 + a_{33}^2 + \ldots + a_{3p}^2 = 1,$$

and also on the condition that PC_3, PC_2 and PC_1 are uncorrelated. There can be up to p principal components if there are p variables. Other important properties of eigenvectors or PCs are:

1. Eigenvectors can only be found for squared matrices.
2. Not all squared matrices have eigenvectors, however a correlation (or covariance) matrix will always have eigenvectors (the same number as there are variables).
3. Length does not affect whether a vector is a particular eigenvector, direction does.
4. Eigenvectors and eigenvalues always come in pairs.

Any correlation between the dependent variable (outcome) and the PCs is captured by means of a regression model. The regression step can be done after the creation of the PCs and removal of some PCs that are believed to be unrelated or of little importance to the effects under study.

In PCA, the number of components extracted is equal to the number of variables being analyzed but the components are chosen in sequence as the best descriptors of the data. If the last few components do not account for much of the variance and can be ignored, it is important to assess how many PCs are needed to account for 'most' of the variation in the original variables. Three criteria have been proposed to answer this question:

- The first method is to look at the eigenvalue (which are ranked in order) to see how many are needed to explain a "sufficient percentage of the total" (some argue that "sufficient" involves those components which explain 70 to 80% of the total variation while others have suggested that a total percentage of 80 to 90% is adequate).
- The second method (also known as the Kaiser criterion) retains only those PCs where eigenvalues are ≥ 1; this is because it is eigenvalues ≥ 1 accounts for a greater amount of variance than had been contributed by one variable since each observed variable contributes only one unit of variance to the total variance. Those components or eigenvalue greater than 1 then accounts for a meaningful amount of variance and are worthy of being retained, while any eigenvalue less than 1 contains less information than

one of the original variables and so is not worth retaining. (Nevertheless, when a cut-off of 1 retains too few variables, an eigenvalue of approximately 0.7 are used for retaining).

- The third method of assessing the number of PCs to be retained is the screen graph or screen plot, where eigenvalues are plotted against PC numbers (with the PC numbers on the x-axis and the eigenvalues on the y-axis). The PCs retained are those whose slope levels off with the decrease of eigenvalues. (This method may lead to the inclusion of too many components compared with the Kaiser criterion but it is often used for data exploration).

Annex 29: PCA Stage 1 - Correlations Matrix

		G.2.-[Food Security]				G.2 - [Food Security]
G.2.	Pearson Correlation	1		C.6.2.	Pearson Correlation	.120(*)
	Sig. (2-tailed)	.			Sig. (2-tailed)	0.011
	N	450			N	450
4.a.	Pearson Correlation	-.152(**)		C.7.1.	Pearson Correlation	-.249(**)
	Sig. (2-tailed)	0.001			Sig. (2-tailed)	0.005
	N	450			N	126
A.3	Pearson Correlation	.162(**)		C.7.2.	Pearson Correlation	.250(**)
	Sig. (2-tailed)	0.002			Sig. (2-tailed)	0
	N	360			N	450
ClientSeniority	Pearson Correlation	-0.013		C.8.1.	Pearson Correlation	0.184
	Sig. (2-tailed)	0.781			Sig. (2-tailed)	0.182
	N	450			N	54
A.4.1.	Pearson Correlation	.142(**)		C.8.2.	Pearson Correlation	0.001
	Sig. (2-tailed)	0.003			Sig. (2-tailed)	0.988
	N	450			N	450
A.5.1.	Pearson Correlation	0.073		C.9.1.	Pearson Correlation	0.06
	Sig. (2-tailed)	0.122			Sig. (2-tailed)	0.564
	N	450			N	94
NUMADULTS	Pearson Correlation	.202(**)		C.9.2.	Pearson Correlation	0.052
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.275
	N	450			N	450
NUMCSA	Pearson Correlation	-.102(*)		C.10.1.	Pearson Correlation	0.04
	Sig. (2-tailed)	0.031			Sig. (2-tailed)	0.761
	N	450			N	59
NUMCBSA	Pearson Correlation	-0.007		C.10.2.	Pearson Correlation	.178(**)
	Sig. (2-tailed)	0.877			Sig. (2-tailed)	0
	N	450			N	450
NUMCHILDREN	Pearson Correlation	-0.054		C.11.1.	Pearson Correlation	-0.109
	Sig. (2-tailed)	0.251			Sig. (2-tailed)	0.28
	N	450			N	100
PercentageChildrenLESSThan6OverChildren	Pearson Correlation	0.092		C.11.2.	Pearson Correlation	.190(**)
	Sig. (2-tailed)	0.062			Sig. (2-tailed)	0
	N	412			N	450
PercentageChildrenLESSThan6OverTotalHH	Pearson Correlation	-0.051		C.12.1.	Pearson Correlation	-0.18
	Sig. (2-tailed)	0.28			Sig. (2-tailed)	0.644
	N	450			N	9
PercentageIncomeEarnerOverTotalHH	Pearson Correlation	0.09		C.12.2.	Pearson Correlation	.240(**)
	Sig. (2-tailed)	0.056			Sig. (2-tailed)	0
	N	450			N	450
PercentageCASOverChildren	Pearson Correlation	-0.092		C.13.1.	Pearson Correlation	0.522
	Sig. (2-tailed)	0.062			Sig. (2-tailed)	0.478
	N	412			N	4
HHh#HHmember	Pearson Correlation	0.042		C.13.2.	Pearson Correlation	0.036
	Sig. (2-tailed)	0.369			Sig. (2-tailed)	0.446
	N	450			N	450

		G.2.-[Food Security]				G.2 - [Food Security]
HHhAge	Pearson Correlation	0.046		AccRankFood	Pearson Correlation	-.207(**)
	Sig. (2-tailed)	0.335			Sig. (2-tailed)	0
	N	448			N	450
HHhLiteracy	Pearson Correlation	.138(**)		Rank1Food	Pearson Correlation	-.157(**)
	Sig. (2-tailed)	0.003			Sig. (2-tailed)	0.001
	N	449			N	450
HHhHighEduc	Pearson Correlation	.144(**)		AccRankClothing	Pearson Correlation	-.103(*)
	Sig. (2-tailed)	0.002			Sig. (2-tailed)	0.03
	N	448			N	450
HHhClothing	Pearson Correlation	.154(**)		Rank1Clothing	Pearson Correlation	.(a)
	Sig. (2-tailed)	0.001			Sig. (2-tailed)	.
	N	448			N	450
A.1.	Pearson Correlation	0.016		AccRankSchooling	Pearson Correlation	0.051
	Sig. (2-tailed)	0.736			Sig. (2-tailed)	0.283
	N	450			N	450
HHhAMKClient	Pearson Correlation	-0.001		Rank1Schooling	Pearson Correlation	0.053
	Sig. (2-tailed)	0.988			Sig. (2-tailed)	0.258
	N	450			N	450
AMKClient#HHmember	Pearson Correlation	0.028		AccRankHeatlh	Pearson Correlation	-.110(*)
	Sig. (2-tailed)	0.59			Sig. (2-tailed)	0.02
	N	360			N	450
AMKClientAge	Pearson Correlation	0.056		Rank1Heatlh	Pearson Correlation	-0.089
	Sig. (2-tailed)	0.293			Sig. (2-tailed)	0.06
	N	359			N	450
AMKClientLiteracy	Pearson Correlation	0.077		AccRankInputCrops	Pearson Correlation	-.120(*)
	Sig. (2-tailed)	0.145			Sig. (2-tailed)	0.011
	N	360			N	450
AMKClientHighEduc	Pearson Correlation	.116(*)		Rank1InputCrops	Pearson Correlation	0.006
	Sig. (2-tailed)	0.029			Sig. (2-tailed)	0.893
	N	358			N	450
AMKClientclothing	Pearson Correlation	.253(**)		AccRankInputLivestockCPR	Pearson Correlation	0.029
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.539
	N	360			N	450
A.8.1.	Pearson Correlation	0.038		Rank1InputLivestockCPR	Pearson Correlation	0.037
	Sig. (2-tailed)	0.422			Sig. (2-tailed)	0.429
	N	448			N	450
A.10.1.	Pearson Correlation	.138(**)		AccRankInputNonFarm	Pearson Correlation	.163(**)
	Sig. (2-tailed)	0.003			Sig. (2-tailed)	0.001
	N	449			N	450
A.12.1.	Pearson Correlation	.149(**)		Rank1InputNonFarm	Pearson Correlation	.123(**)
	Sig. (2-tailed)	0.002			Sig. (2-tailed)	0.009
	N	448			N	450
A.13.1.	Pearson Correlation	.149(**)		AcdRankServiceLoans	Pearson Correlation	-.180(**)
	Sig. (2-tailed)	0.002			Sig. (2-tailed)	0
	N	448			N	450
B.1.1.1.	Pearson Correlation	0.026		AccRankServiceLoans	Pearson Correlation	-.180(**)
	Sig. (2-tailed)	0.584			Sig. (2-tailed)	0
	N	450			N	450
B.1.1.3.	Pearson Correlation	0.075		Rank1ServiceLoans	Pearson Correlation	-.102(*)
	Sig. (2-tailed)	0.111			Sig. (2-tailed)	0.03

		G.2.-[Food Security]				G.2 - [Food Security]
	N	450			N	450
B.1.1.4.	Pearson Correlation	-0.032		AccRankCeremonies	Pearson Correlation	.096(*)
	Sig. (2-tailed)	0.661			Sig. (2-tailed)	0.042
	N	187			N	450
B.1.2.1.	Pearson Correlation	-0.007		Rank1Ceremonies	Pearson Correlation	0.026
	Sig. (2-tailed)	0.878			Sig. (2-tailed)	0.581
	N	450			N	450
B.1.2.3.	Pearson Correlation	0.033		AccRankBuyLand	Pearson Correlation	.123(**)
	Sig. (2-tailed)	0.484			Sig. (2-tailed)	0.009
	N	450			N	450
B.1.2.4.	Pearson Correlation	-0.14		Rank1BuyLand	Pearson Correlation	0.077
	Sig. (2-tailed)	0.46			Sig. (2-tailed)	0.102
	N	30			N	450
B.1.3.1.	Pearson Correlation	0.069		AccRankBuyOAssets	Pearson Correlation	0.082
	Sig. (2-tailed)	0.143			Sig. (2-tailed)	0.084
	N	450			N	450
B.1.3.3.	Pearson Correlation	0.042		Rank1BuyOAssets	Pearson Correlation	.118(*)
	Sig. (2-tailed)	0.376			Sig. (2-tailed)	0.012
	N	450			N	450
B.1.3.4.	Pearson Correlation	-0.194		AccRankBuyGold	Pearson Correlation	.191(**)
	Sig. (2-tailed)	0.677			Sig. (2-tailed)	0
	N	7			N	450
B.2.1.1.	Pearson Correlation	.100(*)		Rank1BuyGold	Pearson Correlation	.109(*)
	Sig. (2-tailed)	0.034			Sig. (2-tailed)	0.02
	N	450			N	450
B.2.1.3.	Pearson Correlation	.102(*)		AccRankOthers	Pearson Correlation	0.046
	Sig. (2-tailed)	0.03			Sig. (2-tailed)	0.335
	N	450			N	450
B.2.1.4.	Pearson Correlation	-0.026		Rank1Others	Pearson Correlation	-0.003
	Sig. (2-tailed)	0.746			Sig. (2-tailed)	0.956
	N	152			N	450
B.2.2.1.	Pearson Correlation	.112(*)		AccRankBasics	Pearson Correlation	-.179(**)
	Sig. (2-tailed)	0.017			Sig. (2-tailed)	0
	N	450			N	450
B.2.2.3.	Pearson Correlation	.194(**)		AccRankFarmInvestmets	Pearson Correlation	-.102(*)
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.031
	N	450			N	450
B.2.2.4.	Pearson Correlation	0.067		AccRankAssetBuilding	Pearson Correlation	.153(**)
	Sig. (2-tailed)	0.633			Sig. (2-tailed)	0.001
	N	53			N	450
B.2.3.1.	Pearson Correlation	0.061		Rank1Basics	Pearson Correlation	-.148(**)
	Sig. (2-tailed)	0.199			Sig. (2-tailed)	0.002
	N	450			N	450
B.2.3.3.	Pearson Correlation	.144(**)		Rank1FarmInvestment	Pearson Correlation	0.028
	Sig. (2-tailed)	0.002			Sig. (2-tailed)	0.552
	N	450			N	450
B.2.3.4.	Pearson Correlation	-0.003		Rank1AssetBuilding	Pearson Correlation	.148(**)
	Sig. (2-tailed)	0.977			Sig. (2-tailed)	0.002
	N	79			N	450
B.3.1.1.	Pearson Correlation	-.150(**)		D.1.1.	Pearson Correlation	.208(**)

		G.2.-[Food Security]				G.2 - [Food Security]
	Sig. (2-tailed)	0.001			Sig. (2-tailed)	0
	N	450			N	450
B.3.1.3.	Pearson Correlation	0.025		D.1.2.	Pearson Correlation	.121(*)
	Sig. (2-tailed)	0.593			Sig. (2-tailed)	0.01
	N	450			N	450
B.3.1.4.	Pearson Correlation	-0.167		D.1.3.	Pearson Correlation	.197(**)
	Sig. (2-tailed)	0.345			Sig. (2-tailed)	0
	N	34			N	450
B.3.2.1.	Pearson Correlation	-.105(*)		D.2.1.	Pearson Correlation	.128(**)
	Sig. (2-tailed)	0.026			Sig. (2-tailed)	0.007
	N	450			N	450
B.3.2.3.	Pearson Correlation	-0.033		D.2.2.	Pearson Correlation	.134(**)
	Sig. (2-tailed)	0.489			Sig. (2-tailed)	0.004
	N	450			N	450
B.3.2.4.	Pearson Correlation	0.559		D.2.3.	Pearson Correlation	.148(**)
	Sig. (2-tailed)	0.327			Sig. (2-tailed)	0.002
	N	5			N	449
B.4.1.1.	Pearson Correlation	-.116(*)		D.3.	Pearson Correlation	-.095(*)
	Sig. (2-tailed)	0.014			Sig. (2-tailed)	0.044
	N	450			N	450
B.4.1.3.	Pearson Correlation	-.115(*)		D.4.	Pearson Correlation	0.094
	Sig. (2-tailed)	0.014			Sig. (2-tailed)	0.099
	N	450			N	310
B.4.1.4.	Pearson Correlation	0.108		D.5.	Pearson Correlation	.119(*)
	Sig. (2-tailed)	0.16			Sig. (2-tailed)	0.026
	N	171			N	348
B.4.2.1.	Pearson Correlation	-0.092		D.6.	Pearson Correlation	.186(**)
	Sig. (2-tailed)	0.051			Sig. (2-tailed)	0
	N	450			N	448
B.4.2.3.	Pearson Correlation	-0.092		D.7.1.	Pearson Correlation	.331(**)
	Sig. (2-tailed)	0.051			Sig. (2-tailed)	0
	N	450			N	450
B.4.2.4.	Pearson Correlation	-0.002		D.7.1.1.	Pearson Correlation	.295(**)
	Sig. (2-tailed)	0.984			Sig. (2-tailed)	0
	N	84			N	450
B.4.3.1.	Pearson Correlation	.152(**)		D.7.1.2.	Pearson Correlation	.263(**)
	Sig. (2-tailed)	0.001			Sig. (2-tailed)	0
	N	450			N	450
B.4.3.3.	Pearson Correlation	.152(**)		D.7.1.3.	Pearson Correlation	.160(**)
	Sig. (2-tailed)	0.001			Sig. (2-tailed)	0.001
	N	450			N	450
B.4.3.4.	Pearson Correlation	0.004		D.7.1.4.	Pearson Correlation	.215(**)
	Sig. (2-tailed)	0.984			Sig. (2-tailed)	0
	N	24			N	450
B.4.4.1.	Pearson Correlation	.157(**)		D.7.1.5.	Pearson Correlation	-0.002
	Sig. (2-tailed)	0.001			Sig. (2-tailed)	0.964
	N	450			N	450
B.4.4.3.	Pearson Correlation	.157(**)		D.7.1.6.	Pearson Correlation	.(a)
	Sig. (2-tailed)	0.001			Sig. (2-tailed)	.
	N	450			N	450
B.4.4.4.	Pearson Correlation	.280(*)		D.7.1.7.0.	Pearson Correlation	.(a)

		G.2.-[Food Security]				G.2 - [Food Security]
	Sig. (2-tailed)	0.026			Sig. (2-tailed)	.
	N	63			N	450
B.5.1.0.1.	Pearson Correlation	.104(*)		ClothingPC	Pearson Correlation	.246(**)
	Sig. (2-tailed)	0.027			Sig. (2-tailed)	0
	N	450			N	447
B.5.1.0.3.	Pearson Correlation	.105(*)		WeeklyFoodExpenseHH	Pearson Correlation	.204(**)
	Sig. (2-tailed)	0.026			Sig. (2-tailed)	0
	N	450			N	450
B.5.1.0.4.	Pearson Correlation	0.123		OtherFoodProducYear0or1	Pearson Correlation	0.078
	Sig. (2-tailed)	0.354			Sig. (2-tailed)	0.099
	N	59			N	450
B.5.1.1.1.	Pearson Correlation	0.039		OtherFoodGathered0or1	Pearson Correlation	0.035
	Sig. (2-tailed)	0.413			Sig. (2-tailed)	0.462
	N	450			N	450
B.5.1.1.3.	Pearson Correlation	0.039		TotalHHFoodExpenseYearly	Pearson Correlation	.241(**)
	Sig. (2-tailed)	0.413			Sig. (2-tailed)	0
	N	450			N	449
B.5.1.1.4.	Pearson Correlation	0.055		TotalYearlyFoodExpensePC	Pearson Correlation	.170(**)
	Sig. (2-tailed)	0.859			Sig. (2-tailed)	0
	N	13			N	449
B.5.1.2.1.	Pearson Correlation	-0.003		ClothingPCOverFoodExpensePC	Pearson Correlation	0.041
	Sig. (2-tailed)	0.943			Sig. (2-tailed)	0.382
	N	450			N	446
B.5.1.2.3.	Pearson Correlation	-0.003		DailyFoodExpensePC	Pearson Correlation	.170(**)
	Sig. (2-tailed)	0.943			Sig. (2-tailed)	0
	N	450			N	449
B.5.1.2.4.	Pearson Correlation	0.707		CountLESSorEQUALRuralFoodPovertyLine1482Proxy2005	Pearson Correlation	-.187(**)
	Sig. (2-tailed)	0.293			Sig. (2-tailed)	0
	N	4			N	450
B.5.1.3.1.	Pearson Correlation	0.043		ClothingPCUS$	Pearson Correlation	.246(**)
	Sig. (2-tailed)	0.367			Sig. (2-tailed)	0
	N	450			N	447
B.5.1.3.3.	Pearson Correlation	0.043		DailyFoodPCExpenseUS$	Pearson Correlation	.170(**)
	Sig. (2-tailed)	0.357			Sig. (2-tailed)	0
	N	450			N	449
B.5.1.3.4.	Pearson Correlation	0.074		E.1.	Pearson Correlation	.136(**)
	Sig. (2-tailed)	0.743			Sig. (2-tailed)	0.004
	N	22			N	448
B.5.1.4.1.	Pearson Correlation	-0.071		HHTotalLandAreainHa	Pearson Correlation	.171(**)
	Sig. (2-tailed)	0.135			Sig. (2-tailed)	0
	N	450			N	450
B.5.1.4.3.	Pearson Correlation	-0.053		HHTotalValueLandinRiel	Pearson Correlation	.212(**)
	Sig. (2-tailed)	0.264			Sig. (2-tailed)	0
	N	450			N	450
B.5.1.4.4.	Pearson Correlation	0.026		E.2.1.	Pearson Correlation	0.072
	Sig. (2-tailed)	0.923			Sig. (2-tailed)	0.133

		G.2.-[Food Security]				G.2 - [Food Security]
	N	16			N	440
B.5.1.5.1.	Pearson Correlation	-0.009		E.2.2.	Pearson Correlation	.193(**)
	Sig. (2-tailed)	0.847			Sig. (2-tailed)	0
	N	450			N	434
B.5.1.5.3.	Pearson Correlation	-0.009		E.2.3.	Pearson Correlation	.148(**)
	Sig. (2-tailed)	0.847			Sig. (2-tailed)	0.002
	N	450			N	436
B.5.1.5.4.	Pearson Correlation	-0.265		E.2.4.	Pearson Correlation	.096(*)
	Sig. (2-tailed)	0.289			Sig. (2-tailed)	0.042
	N	18			N	443
B.6.1.0.1.	Pearson Correlation	.211(**)		E.3.1.	Pearson Correlation	.216(**)
	Sig. (2-tailed)	0			Sig. (2-tailed)	0
	N	450			N	449
B.6.1.0.3.	Pearson Correlation	.211(**)		E.3.2.	Pearson Correlation	.254(**)
	Sig. (2-tailed)	0			Sig. (2-tailed)	0
	N	450			N	449
B.6.1.0.4.	Pearson Correlation	0.13		E.3.3.	Pearson Correlation	.377(**)
	Sig. (2-tailed)	0.431			Sig. (2-tailed)	0
	N	39			N	448
B.6.1.1.1.	Pearson Correlation	0.063		E.3.4.1.	Pearson Correlation	.128(**)
	Sig. (2-tailed)	0.18			Sig. (2-tailed)	0.006
	N	450			N	449
B.6.1.1.3.	Pearson Correlation	0.065		E.3.4.2.	Pearson Correlation	.152(**)
	Sig. (2-tailed)	0.171			Sig. (2-tailed)	0.001
	N	450			N	449
B.6.1.1.4.	Pearson Correlation	-0.163		E.3.4.3.	Pearson Correlation	.114(*)
	Sig. (2-tailed)	0.546			Sig. (2-tailed)	0.016
	N	16			N	449
B.6.1.2.1.	Pearson Correlation	.110(*)		E.4.1.	Pearson Correlation	.221(**)
	Sig. (2-tailed)	0.02			Sig. (2-tailed)	0
	N	450			N	450
B.6.1.2.3.	Pearson Correlation	.110(*)		E.4.2.	Pearson Correlation	-0.012
	Sig. (2-tailed)	0.02			Sig. (2-tailed)	0.803
	N	450			N	450
B.6.1.2.4.	Pearson Correlation	0.073		E.4.3.	Pearson Correlation	.232(**)
	Sig. (2-tailed)	0.682			Sig. (2-tailed)	0
	N	34			N	450
B.6.1.3.1.	Pearson Correlation	-0.003		E.4.4.	Pearson Correlation	.147(**)
	Sig. (2-tailed)	0.949			Sig. (2-tailed)	0.002
	N	450			N	450
B.6.1.3.3.	Pearson Correlation	-0.003		E.4.5.	Pearson Correlation	0.006
	Sig. (2-tailed)	0.949			Sig. (2-tailed)	0.897
	N	450			N	450
B.6.1.3.4.	Pearson Correlation	.(a)		E.4.6.	Pearson Correlation	0.061
	Sig. (2-tailed)	.			Sig. (2-tailed)	0.194
	N	2			N	450
B.6.1.4.1.	Pearson Correlation	0.04		E.4.7.0.	Pearson Correlation	.143(**)
	Sig. (2-tailed)	0.396			Sig. (2-tailed)	0.002
	N	450			N	450
B.6.1.4.3.	Pearson Correlation	0.04		E.5.1.	Pearson Correlation	0.039
	Sig. (2-tailed)	0.396			Sig. (2-tailed)	0.413

		G.2.-[Food Security]				G.2 - [Food Security]
	N	450			N	450
B.6.1.4.4.	Pearson Correlation	0.408		E.5.2.	Pearson Correlation	-0.071
	Sig. (2-tailed)	0.495			Sig. (2-tailed)	0.134
	N	5			N	450
B.6.1.5.1.	Pearson Correlation	.200(**)		E.5.3.	Pearson Correlation	.094(*)
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.047
	N	450			N	450
B.6.1.5.3.	Pearson Correlation	.200(**)		E.5.4.	Pearson Correlation	.156(**)
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.001
	N	450			N	450
B.6.1.5.4.	Pearson Correlation	-0.148		E.5.5.	Pearson Correlation	.099(*)
	Sig. (2-tailed)	0.419			Sig. (2-tailed)	0.035
	N	32			N	450
B.7.1.1.	Pearson Correlation	-0.026		E.5.6.	Pearson Correlation	.222(**)
	Sig. (2-tailed)	0.585			Sig. (2-tailed)	0
	N	450			N	450
B.7.1.3.	Pearson Correlation	-0.026		E.5.7.0.	Pearson Correlation	.109(*)
	Sig. (2-tailed)	0.585			Sig. (2-tailed)	0.02
	N	450			N	450
B.7.1.4.	Pearson Correlation	0.037		E.6.1.	Pearson Correlation	.288(**)
	Sig. (2-tailed)	0.901			Sig. (2-tailed)	0
	N	14			N	450
B.8.1.0.1.	Pearson Correlation	0.048		E.6.2.	Pearson Correlation	0.07
	Sig. (2-tailed)	0.309			Sig. (2-tailed)	0.137
	N	450			N	450
B.8.1.0.3.	Pearson Correlation	0.066		E.6.3.	Pearson Correlation	.135(**)
	Sig. (2-tailed)	0.161			Sig. (2-tailed)	0.004
	N	450			N	450
B.8.1.0.4.	Pearson Correlation	0.614		E.6.4.	Pearson Correlation	.095(*)
	Sig. (2-tailed)	0.078			Sig. (2-tailed)	0.043
	N	9			N	450
B.8.1.1.1.	Pearson Correlation	0.081		E.6.5.	Pearson Correlation	-0.002
	Sig. (2-tailed)	0.088			Sig. (2-tailed)	0.975
	N	450			N	450
B.8.1.1.3.	Pearson Correlation	0.081		E.6.6.0.	Pearson Correlation	0.053
	Sig. (2-tailed)	0.088			Sig. (2-tailed)	0.258
	N	450			N	450
B.8.1.1.4.	Pearson Correlation	-0.372		E.6.7.0.	Pearson Correlation	.(a)
	Sig. (2-tailed)	0.106			Sig. (2-tailed)	.
	N	20			N	450
B.8.1.2.1.	Pearson Correlation	-.123(**)		E.7.	Pearson Correlation	.219(**)
	Sig. (2-tailed)	0.009			Sig. (2-tailed)	0
	N	450			N	448
B.8.1.2.3.	Pearson Correlation	-.127(**)		FloorMud	Pearson Correlation	-0.006
	Sig. (2-tailed)	0.007			Sig. (2-tailed)	0.891
	N	450			N	450
B.8.1.2.4.	Pearson Correlation	0.51		FloorMedium	Pearson Correlation	-0.012
	Sig. (2-tailed)	0.109			Sig. (2-tailed)	0.795
	N	11			N	450
B.8.1.3.1.	Pearson Correlation	-0.082		FloorExpensive	Pearson Correlation	.202(**)
	Sig. (2-tailed)	0.083			Sig. (2-tailed)	0

		G.2.-[Food Security]				G.2 - [Food Security]
	N	450			N	450
B.8.1.3.3.	Pearson Correlation	-0.073		RoofThatch	Pearson Correlation	-.233(**)
	Sig. (2-tailed)	0.122			Sig. (2-tailed)	0
	N	450			N	450
B.8.1.3.4.	Pearson Correlation	-0.125		RoofMedium	Pearson Correlation	.113(*)
	Sig. (2-tailed)	0.749			Sig. (2-tailed)	0.016
	N	9			N	450
B.8.1.4.1.	Pearson Correlation	-0.017		RoofExpensive	Pearson Correlation	.165(**)
	Sig. (2-tailed)	0.715			Sig. (2-tailed)	0
	N	450			N	450
B.8.1.4.3.	Pearson Correlation	-0.017		WallThatch	Pearson Correlation	-.286(**)
	Sig. (2-tailed)	0.719			Sig. (2-tailed)	0
	N	450			N	450
B.8.1.4.4.	Pearson Correlation	0.183		WallMedium	Pearson Correlation	0.044
	Sig. (2-tailed)	0.119			Sig. (2-tailed)	0.355
	N	74			N	450
B.8.1.5.1.	Pearson Correlation	.236(**)		WallExpensive	Pearson Correlation	.342(**)
	Sig. (2-tailed)	0			Sig. (2-tailed)	0
	N	450			N	450
B.8.1.5.3.	Pearson Correlation	.236(**)		AssetsModestValue	Pearson Correlation	.117(*)
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.013
	N	450			N	450
B.8.1.5.4.	Pearson Correlation	0.343		AssetsMidRangetValue	Pearson Correlation	.214(**)
	Sig. (2-tailed)	0.506			Sig. (2-tailed)	0
	N	6			N	450
B.8.1.6.1.	Pearson Correlation	0.07		AssetsHighRangetValue	Pearson Correlation	.279(**)
	Sig. (2-tailed)	0.14			Sig. (2-tailed)	0
	N	450			N	450
B.8.1.6.3.	Pearson Correlation	0.07		AssetOrdinal	Pearson Correlation	.311(**)
	Sig. (2-tailed)	0.14			Sig. (2-tailed)	0
	N	450			N	450
B.8.1.6.4.	Pearson Correlation	.(a)		F.1.	Pearson Correlation	-0.007
	Sig. (2-tailed)	.			Sig. (2-tailed)	0.877
	N	1			N	450
FarmCropsCash0or1	Pearson Correlation	0.081		F.2.	Pearson Correlation	.149(**)
	Sig. (2-tailed)	0.087			Sig. (2-tailed)	0.001
	N	450			N	450
FarmLivestockCash0or1	Pearson Correlation	.176(**)		F.3.	Pearson Correlation	-0.064
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.172
	N	450			N	450
FarmCPRCash0or1	Pearson Correlation	-0.053		F.4.	Pearson Correlation	-.098(*)
	Sig. (2-tailed)	0.265			Sig. (2-tailed)	0.038
	N	450			N	450
NonFarmCasualLaborCash0or1	Pearson Correlation	-.125(**)		G.1.	Pearson Correlation	.451(**)
	Sig. (2-tailed)	0.008			Sig. (2-tailed)	0
	N	450			N	450
NonFarmSalariedLaborCash0or1	Pearson Correlation	.179(**)		G.1.1.1.	Pearson Correlation	-.278(**)
	Sig. (2-tailed)	0			Sig. (2-tailed)	0
	N	450			N	450
NonFarmManufacturingC	Pearson Correlation	0.071		G.1.1.2.	Pearson Correlation	-.107(*)

		G.2.-[Food Security]				G.2 - [Food Security]
ash0or1						
	Sig. (2-tailed)	0.132			Sig. (2-tailed)	0.023
	N	450			N	450
NonFarmServicesCash0or1	Pearson Correlation	.272(**)		G.1.1.3.	Pearson Correlation	-.177(**)
	Sig. (2-tailed)	0			Sig. (2-tailed)	0
	N	450			N	450
NonRemittancesCash0or1	Pearson Correlation	-0.026		G.1.1.4.	Pearson Correlation	-.315(**)
	Sig. (2-tailed)	0.585			Sig. (2-tailed)	0
	N	450			N	450
NonRentSaleOtherCash0or1	Pearson Correlation	0.045		G.1.1.5.	Pearson Correlation	-0.005
	Sig. (2-tailed)	0.345			Sig. (2-tailed)	0.919
	N	450			N	450
NonRentUsedCash0or1	Pearson Correlation	-0.073		G.1.1.6.	Pearson Correlation	-.176(**)
	Sig. (2-tailed)	0.122			Sig. (2-tailed)	0
	N	450			N	450
NonLoansReceivedCash0or1	Pearson Correlation	-0.017		G.1.1.7.	Pearson Correlation	-.286(**)
	Sig. (2-tailed)	0.719			Sig. (2-tailed)	0
	N	450			N	450
NonLoansGivenCash0or1	Pearson Correlation	.236(**)		G.1.1.8.0.	Pearson Correlation	-0.037
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.432
	N	450			N	450
FarmCash0or1	Pearson Correlation	.178(**)		G.3	Pearson Correlation	.712(**)
	Sig. (2-tailed)	0			Sig. (2-tailed)	0
	N	450			N	449
NonFarmCash0or1	Pearson Correlation	0.081		G.4.	Pearson Correlation	-.625(**)
	Sig. (2-tailed)	0.087			Sig. (2-tailed)	0
	N	450			N	450
OtherInflowCash0or1	Pearson Correlation	0.001		G.5.	Pearson Correlation	-.583(**)
	Sig. (2-tailed)	0.991			Sig. (2-tailed)	0
	N	450			N	450
AccRankCrops	Pearson Correlation	0.054		G.6.10.0.	Pearson Correlation	0.019
	Sig. (2-tailed)	0.257			Sig. (2-tailed)	0.68
	N	450			N	450
Rank1Crops	Pearson Correlation	0.062		G.6.10.1.	Pearson Correlation	.(a)
	Sig. (2-tailed)	0.188			Sig. (2-tailed)	.
	N	450			N	7
AccRankLivestock	Pearson Correlation	0.02		G.6.11.	Pearson Correlation	-0.063
	Sig. (2-tailed)	0.676			Sig. (2-tailed)	0.181
	N	450			N	450
Rank1Livestock	Pearson Correlation	0.042		G.6.12.	Pearson Correlation	-0.005
	Sig. (2-tailed)	0.372			Sig. (2-tailed)	0.919
	N	450			N	450
AccRankCPR	Pearson Correlation	-0.082		G.6.13.	Pearson Correlation	0.043
	Sig. (2-tailed)	0.082			Sig. (2-tailed)	0.357
	N	450			N	450
Rank1CPR	Pearson Correlation	-0.074		G.6.14.	Pearson Correlation	-0.002
	Sig. (2-tailed)	0.117			Sig. (2-tailed)	0.975
	N	450			N	450
AccRankCasualLabor	Pearson Correlation	-.168(**)		G.6.20.	Pearson Correlation	-0.028

		G.2.-[Food Security]				G.2 - [Food Security]
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.548
	N	450			N	450
Rank1CasualLabor	Pearson Correlation	-.126(**)		G.6.21.	Pearson Correlation	-0.004
	Sig. (2-tailed)	0.007			Sig. (2-tailed)	0.937
	N	450			N	450
AccRankSalariedLabor	Pearson Correlation	.185(**)		G.6.22.	Pearson Correlation	-0.07
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.14
	N	450			N	450
Rank1SalariedLabor	Pearson Correlation	0.056		G.6.30.	Pearson Correlation	-0.083
	Sig. (2-tailed)	0.237			Sig. (2-tailed)	0.08
	N	450			N	450
AccRankServices	Pearson Correlation	.213(**)		G.6.31.	Pearson Correlation	.(a)
	Sig. (2-tailed)	0			Sig. (2-tailed)	.
	N	450			N	450
CashInflowFromPettyTradeB610B612	Pearson Correlation	.228(**)		G.6.32.	Pearson Correlation	.(a)
	Sig. (2-tailed)	0			Sig. (2-tailed)	.
	N	450			N	450
Rank1InflowFromPettyTradeB610B612	Pearson Correlation	0.09		G.7.	Pearson Correlation	0.08
	Sig. (2-tailed)	0.057			Sig. (2-tailed)	0.091
	N	450			N	450
AccRankInflowFromPettyTradeB610B612	Pearson Correlation	.186(**)		G.8.10.	Pearson Correlation	0.036
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.444
	N	450			N	450
Rank1Services	Pearson Correlation	.129(**)		G.8.20.	Pearson Correlation	-.312(**)
	Sig. (2-tailed)	0.006			Sig. (2-tailed)	0
	N	450			N	450
Rank1Manufacture	Pearson Correlation	0.03		G.8.21.	Pearson Correlation	-.319(**)
	Sig. (2-tailed)	0.521			Sig. (2-tailed)	0
	N	450			N	450
AccRankManufacture	Pearson Correlation	0.071		G.8.30.	Pearson Correlation	-0.005
	Sig. (2-tailed)	0.134			Sig. (2-tailed)	0.911
	N	450			N	450
AccRankRemittances	Pearson Correlation	-.137(**)		G.8.31.	Pearson Correlation	-0.059
	Sig. (2-tailed)	0.004			Sig. (2-tailed)	0.214
	N	450			N	450
Rank1Remittances	Pearson Correlation	-.115(*)		G.8.32.	Pearson Correlation	-.115(*)
	Sig. (2-tailed)	0.015			Sig. (2-tailed)	0.015
	N	450			N	450
AccRankRentSaleOther	Pearson Correlation	-0.09		G.8.33.	Pearson Correlation	-.190(**)
	Sig. (2-tailed)	0.056			Sig. (2-tailed)	0
	N	450			N	450
Rank1RentSaleOther	Pearson Correlation	-0.035		G.8.40.	Pearson Correlation	-.490(**)
	Sig. (2-tailed)	0.464			Sig. (2-tailed)	0
	N	450			N	450
AccRankRentalUsed	Pearson Correlation	-0.037		G.8.41.	Pearson Correlation	-.503(**)
	Sig. (2-tailed)	0.432			Sig. (2-tailed)	0
	N	450			N	450
Rank1RentalUsed	Pearson Correlation	.(a)		G.8.42.	Pearson Correlation	-.279(**)
	Sig. (2-tailed)	.			Sig. (2-tailed)	0

		G.2.-[Food Security]				G.2 - [Food Security]
	N	450			N	450
AccRankLoansReceived	Pearson Correlation	-.149(**)		G.8.50.0.	Pearson Correlation	-0.003
	Sig. (2-tailed)	0.001			Sig. (2-tailed)	0.956
	N	450			N	450
Rank1LoansReceived	Pearson Correlation	-0.09		G.9.	Pearson Correlation	.428(**)
	Sig. (2-tailed)	0.055			Sig. (2-tailed)	0
	N	450			N	450
AccRankLoansGiven	Pearson Correlation	.155(**)		G.10.	Pearson Correlation	-0.046
	Sig. (2-tailed)	0.001			Sig. (2-tailed)	0.333
	N	450			N	450
Rank1LoansGiven	Pearson Correlation	0.066		G.11.	Pearson Correlation	-.422(**)
	Sig. (2-tailed)	0.16			Sig. (2-tailed)	0
	N	450			N	449
C.1.1.	Pearson Correlation	.140(**)		G.12.	Pearson Correlation	.293(**)
	Sig. (2-tailed)	0.004			Sig. (2-tailed)	0
	N	424			N	449
C.1.2.	Pearson Correlation	.(a)		G.13.	Pearson Correlation	.101(*)
	Sig. (2-tailed)	.			Sig. (2-tailed)	0.032
	N	450			N	450
C.2.1.	Pearson Correlation	-0.173		CrisisEventsHH	Pearson Correlation	-0.026
	Sig. (2-tailed)	0.378			Sig. (2-tailed)	0.579
	N	28			N	450
C.2.2.	Pearson Correlation	0.004		CrisisEventsEA	Pearson Correlation	-0.056
	Sig. (2-tailed)	0.932			Sig. (2-tailed)	0.235
	N	450			N	450
C.3.1.	Pearson Correlation	-0.102		CrisisEventsExternal	Pearson Correlation	-0.083
	Sig. (2-tailed)	0.619			Sig. (2-tailed)	0.08
	N	26			N	450
C.3.2.	Pearson Correlation	0.061		CopingSavings	Pearson Correlation	0.036
	Sig. (2-tailed)	0.196			Sig. (2-tailed)	0.444
	N	450			N	450
C.4.1.	Pearson Correlation	0.039		CopingBorrowing	Pearson Correlation	-.378(**)
	Sig. (2-tailed)	0.647			Sig. (2-tailed)	0
	N	141			N	450
C.4.2.	Pearson Correlation	-0.064		CopingEA	Pearson Correlation	-.161(**)
	Sig. (2-tailed)	0.172			Sig. (2-tailed)	0.001
	N	450			N	450
C.5.1.	Pearson Correlation	-0.091		CopingReduceSold	Pearson Correlation	-.525(**)
	Sig. (2-tailed)	0.211			Sig. (2-tailed)	0
	N	192			N	450
C.5.2.	Pearson Correlation	0.012		CopingOther	Pearson Correlation	-0.003
	Sig. (2-tailed)	0.797			Sig. (2-tailed)	0.956
	N	450			N	450
C.6.1.	Pearson Correlation	0.055				
	Sig. (2-tailed)	0.604				
	N	92				

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

a Cannot be computed because at least one of the variables is constant.

Highly Ranked Indicators (166 variables) by Level of Association with Benchmark "*Food Security*"

Indicator	Level of Significance	Value and Sign of Correlation Coefficient	Number of cases
G.2.	.	1	450
NUMADULTS	0	.202(**)	450
AMKClientclothing	0	.253(**)	360
B.2.2.3.	0	.194(**)	450
B.6.1.0.1.	0	.211(**)	450
B.6.1.0.3.	0	.211(**)	450
B.6.1.5.1.	0	.200(**)	450
B.6.1.5.3.	0	.200(**)	450
B.8.1.5.1.	0	.236(**)	450
B.8.1.5.3.	0	.236(**)	450
FarmLivestockCash0or1	0	.176(**)	450
NonFarmSalariedLaborCash0or1	0	.179(**)	450
NonFarmServicesCash0or1	0	.272(**)	450
NonLoansGivenCash0or1	0	.236(**)	450
FarmCash0or1	0	.178(**)	450
AccRankCasualLabor	0	-.168(**)	450
AccRankSalariedLabor	0	.185(**)	450
AccRankServices	0	.213(**)	450
CashInflowFromPettyTradeB610B612	0	.228(**)	450
AccRankInflowFromPettyTradeB610B612	0	.186(**)	450
C.7.2.	0	.250(**)	450
C.10.2.	0	.178(**)	450
C.11.2.	0	.190(**)	450
C.12.2.	0	.240(**)	450
AccRankFood	0	-.207(**)	450
AcdRankServiceLoans	0	-.180(**)	450
AccRankServiceLoans	0	-.180(**)	450
AccRankBuyGold	0	.191(**)	450
AccRankBasics	0	-.179(**)	450
D.1.1.	0	.208(**)	450
D.1.3.	0	.197(**)	450
D.6.	0	.186(**)	448
D.7.1.	0	.331(**)	450
D.7.1.1.	0	.295(**)	450
D.7.1.2.	0	.263(**)	450
D.7.1.4.	0	.215(**)	450
ClothingPC	0	.246(**)	447
WeeklyFoodExpenseHH	0	.204(**)	450
TotalHHFoodExpenseYearly	0	.241(**)	449
TotalYearlyFoodExpensePC	0	.170(**)	449
DailyFoodExpensePC	0	.170(**)	449
CountLESSorEQUALRuralFood PovertyLine1482Proxy2005	0	-.187(**)	450
ClothingPCUS$	0	.246(**)	447
DailyFoodPCExpenseUS$	0	.170(**)	449
HHTotalLandAreainHa	0	.171(**)	450
HHTotalValueLandinRiel	0	.212(**)	450

Indicator	Level of Significance	Value and Sign of Correlation Coefficient	Number of cases
E.2.2.	0	.193(**)	434
E.3.1.	0	.216(**)	449
E.3.2.	0	.254(**)	449
E.3.3.	0	.377(**)	448
E.4.1.	0	.221(**)	450
E.4.3.	0	.232(**)	450
E.5.6.	0	.222(**)	450
E.6.1.	0	.288(**)	450
E.7.	0	.219(**)	448
FloorExpensive	0	.202(**)	450
RoofThatch	0	-.233(**)	450
RoofExpensive	0	.165(**)	450
WallThatch	0	-.286(**)	450
WallExpensive	0	.342(**)	450
AssetsMidRangetValue	0	.214(**)	450
AssetsHighRangetValue	0	.279(**)	450
AssetOrdinal	0	.311(**)	450
G.1.	0	.451(**)	450
G.1.1.1.	0	-.278(**)	450
G.1.1.3.	0	-.177(**)	450
G.1.1.4.	0	-.315(**)	450
G.1.1.6.	0	-.176(**)	450
G.1.1.7.	0	-.286(**)	450
G.3	0	.712(**)	449
G.4.	0	-.625(**)	450
G.5.	0	-.583(**)	450
G.8.20.	0	-.312(**)	450
G.8.21.	0	-.319(**)	450
G.8.33.	0	-.190(**)	450
G.8.40.	0	-.490(**)	450
G.8.41.	0	-.503(**)	450
G.8.42.	0	-.279(**)	450
G.9.	0	.428(**)	450
G.11.	0	-.422(**)	449
G.12.	0	.293(**)	449
CopingBorrowing	0	-.378(**)	450
CopingReduceSold	0	-.525(**)	450
4.a.	0.001	-.152(**)	450
HHhClothing	0.001	.154(**)	448
B.3.1.1.	0.001	-.150(**)	450
B.4.3.1.	0.001	.152(**)	450
B.4.3.3.	0.001	.152(**)	450
B.4.4.1.	0.001	.157(**)	450
B.4.4.3.	0.001	.157(**)	450
AccRankLoansReceived	0.001	-.149(**)	450
AccRankLoansGiven	0.001	.155(**)	450
Rank1Food	0.001	-.157(**)	450
AccRankInputNonFarm	0.001	.163(**)	450
AccRankAssetBuilding	0.001	.153(**)	450

Indicator	Level of Significance	Value and Sign of Correlation Coefficient	Number of cases
D.7.1.3.	0.001	.160(**)	450
E.3.4.2.	0.001	.152(**)	449
E.5.4.	0.001	.156(**)	450
F.2.	0.001	.149(**)	450
CopingEA	0.001	-.161(**)	450
A.3	0.002	.162(**)	360
HHhHighEduc	0.002	.144(**)	448
A.12.1.	0.002	.149(**)	448
A.13.1.	0.002	.149(**)	448
B.2.3.3.	0.002	.144(**)	450
Rank1Basics	0.002	-.148(**)	450
Rank1AssetBuilding	0.002	.148(**)	450
D.2.3.	0.002	.148(**)	449
E.2.3.	0.002	.148(**)	436
E.4.4.	0.002	.147(**)	450
E.4.7.0.	0.002	.143(**)	450
A.4.1.	0.003	.142(**)	450
HHhLiteracy	0.003	.138(**)	449
A.10.1.	0.003	.138(**)	449
AccRankRemittances	0.004	-.137(**)	450
C.1.1.	0.004	.140(**)	450
D.2.2.	0.004	.134(**)	450
E.1.	0.004	.136(**)	448
E.6.3.	0.004	.135(**)	450
C.7.1.	0.005	-.249(**)	126
Rank1Services	0.006	.129(**)	450
E.3.4.1.	0.006	.128(**)	449
B.8.1.2.3.	0.007	-.127(**)	450
Rank1CasualLabor	0.007	-.126(**)	450
D.2.1.	0.007	.128(**)	450
NonFarmCasualLaborCash0or1	0.008	-.125(**)	450
B.8.1.2.1.	0.009	-.123(**)	450
Rank1InputNonFarm	0.009	.123(**)	450
AccRankBuyLand	0.009	.123(**)	450
D.1.2.	0.01	.121(*)	450
C.6.2.	0.011	.120(*)	450
AccRankInputCrops	0.011	-.120(*)	450
Rank1BuyOAssets	0.012	.118(*)	450
AssetsModestValue	0.013	.117(*)	450
B.4.1.1.	0.014	-.116(*)	450
B.4.1.3.	0.014	-.115(*)	450
Rank1Remittances	0.015	-.115(*)	450
G.8.32.	0.015	-.115(*)	450
E.3.4.3.	0.016	.114(*)	449
RoofMedium	0.016	.113(*)	450
B.2.2.1.	0.017	.112(*)	450
B.6.1.2.1.	0.02	.110(*)	450
B.6.1.2.3.	0.02	.110(*)	450
AccRankHeatlh	0.02	-.110(*)	450

Indicator	Level of Significance	Value and Sign of Correlation Coefficient	Number of cases
Rank1BuyGold	0.02	.109(*)	450
E.5.7.0.	0.02	.109(*)	450
G.1.1.2.	0.023	-.107(*)	450
B.3.2.1.	0.026	-.105(*)	450
B.4.4.4.	0.026	.280(*)	**63**
B.5.1.0.3.	0.026	.105(*)	450
D.5.	0.026	.119(*)	348
B.5.1.0.1.	0.027	.104(*)	450
AMKClientHighEduc	0.029	.116(*)	358
B.2.1.3.	0.03	.102(*)	450
AccRankClothing	0.03	-.103(*)	450
Rank1ServiceLoans	0.03	-.102(*)	450
NUMCSA	0.031	-.102(*)	450
AccRankFarmInvestmetns	0.031	-.102(*)	450
G.13.	0.032	.101(*)	450
B.2.1.1.	0.034	.100(*)	450
E.5.5.	0.035	.099(*)	450
F.4.	0.038	-.098(*)	450
AccRankCeremonies	0.042	.096(*)	450
E.2.4.	0.042	.096(*)	443
E.6.4.	0.043	.095(*)	450
D.3.	0.044	-.095(*)	450
E.5.3.	0.047	.094(*)	450

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
a Cannot be computed because at least one of the variables is constant.

Annex 30: PCA Stage 1 - Reduction from 166 to 47 Variables

Reduction from 166 to 47 variables for Stage 1 of PCA
(ordered by level of association with "*Food Security*")

Set of 166 highly correlated Variables (ordered by level of significance)	Level of Significance	Correlation Coefficient	N	Set of 47 initial variables chosen for PCA and reasons for exclusion
G.2.	.	1	450	► Benchmark: Food Security
G.3	0	.712(**)	449	► Chosen
G.4.	0	-.625(**)	450	Covered in CopingReduceSold
G.5.	0	-.583(**)	450	Covered in CopingReduceSold
CopingReduceSold	0	-.525(**)	450	► Chosen
G.8.41.	0	-.503(**)	450	Covered in CopingReduceSold
G.8.40.	0	-.490(**)	450	Covered in CopingReduceSold
G.1.	0	.451(**)	450	► Chosen
G.9.	0	.428(**)	450	► Chosen
G.11.	0	-.422(**)	449	► Chosen
CopingBorrowing	0	-.378(**)	450	► Chosen
E.3.3. [Walls]	0	.377(**)	448	► Chosen
WallExpensive	0	.342(**)	450	Covered in E.3.3 Walls
D.7.1.	0	.331(**)	450	► Chosen
G.8.21.	0	-.319(**)	450	Covered in CopingBorrowing
G.1.1.4.	0	-.315(**)	450	Specific reasons for Decreased Income, main concept covered in G.1
G.8.20.	0	-.312(**)	450	Covered in CopingBorrowing
AssetOrdinal	0	.311(**)	450	► Chosen
D.7.1.1.	0	.295(**)	450	Specific forms of savings, main concept covered in D.7.1
G.12.	0	.293(**)	449	► Chosen
E.6.1. [Motorcycle]	0	.288(**)	450	► Chosen
WallThatch	0	-.286(**)	450	Covered in E.3.3 Walls
G.1.1.7.	0	-.286(**)	450	Specific reasons for Decreased Income, main concept covered in G.1
G.8.42.	0	-.279(**)	450	Covered in CopingReduceSold
AssetsHighRangetValue	0	.279(**)	450	Covered in AssetOrdinal
G.1.1.1.	0	-.278(**)	450	Specific reasons for Decreased Income, main concept covered in G.1
NonFarmServicesCash0or1	0	.272(**)	450	► Chosen
D.7.1.2.	0	.263(**)	450	Specific forms of savings, main concept covered in D.7.1
E.3.2. [Roof]	0	.254(**)	449	► Chosen
AMKClientclothing	0	.253(**)	360	Only relevant for AMK clients
C.7.2. [Outflow reinvest NonFarm]	0	.250(**)	450	► Chosen
ClothingPC	0	.246(**)	447	► Chosen
ClothingPCUS$	0	.246(**)	447	Duplicated from ClothingPC
TotalHHFoodExpenseYearly	0	.241(**)	449	► Chosen
C.12.2.[Outflow buy gold]	0	.240(**)	450	► Chosen

Set of 166 highly correlated Variables (ordered by level of significance)	Level of Significance	Correlation Coefficient	N	Set of 47 initial variables chosen for PCA and reasons for exclusion
B.8.1.5.1. [Inflow back loans given]	0	.236(**)	450	Covered inNonLoansGivenCash0or1
B.8.1.5.3. [CashInflowBackLoanGiven]	0	.236(**)	450	Duplicated NonLoansGivenCash0or1
NonLoansGivenCash0or1	0	.236(**)	450	► Chosen
RoofThatch	0	-.233(**)	450	Covered in E.3.2 [Roof]
E.4.3. [TV]	0	.232(**)	450	► Chosen
CashInflowFromPettyTradeB610B612	0	.228(**)	450	► Chosen
E.5.6. [Mobile]	0	.222(**)	450	► Chosen
E.4.1. [Radio]	0	.221(**)	450	E.4.3. [TV] instead of radio
E.7. [Toilet]	0	.219(**)	448	► Chosen
E.3.1.[Floor]	0	.216(**)	449	► Chosen
D.7.1.4.	0	.215(**)	450	Specific forms of savings, main concept covered in D.7.1
AssetsMidRangeValue	0	.214(**)	450	Covered in AssetOrdinal
AccRankServices	0	.213(**)	450	Covered in NonFarmServicesCash0or1
HHTotalValueLandinRiel	0	.212(**)	450	► Chosen
B.6.1.0.1. [Petty Trade]	0	.211(**)	450	Covered in CashInflowFromPettyTradeB610B612
B.6.1.0.3. [Cash Petty Trade]	0	.211(**)	450	Covered in CashInflowFromPettyTradeB610B613
D.1.1. [Daily expenditure Food HH]	0	.208(**)	450	Covered in TotalHHFoodExpenseYearly
AccRankFood	0	-.207(**)	450	► Chosen
WeeklyFoodExpenseHH	0	.204(**)	450	Covered in TotalHHFoodExpenseYearly
NUMADULTS	0	.202(**)	450	► Chosen
FloorExpensive	0	.202(**)	450	Covered in E.3.1 [Floor]
B.6.1.5.1. [Other services]	0	.200(**)	450	Covered in NonFarmServicesCash0or1
B.6.1.5.3. [Cash Other services]	0	.200(**)	450	Covered in NonFarmServicesCash0or1
D.1.3. [Weekly Food Expenditure]	0	.197(**)	450	Covered in TotalHHFoodExpenseYearly
B.2.2.3. [Cash Poultry]	0	.194(**)	450	Covered in FarmLivestockCash0or1
E.2.2. [Cows]	0	.193(**)	434	Animals as asset not included (province specific)
AccRankBuyGold	0	.191(**)	450	Covered in C.12.2.[Outflow buy gold]
G.8.33.	0	-.190(**)	450	Covered in CopingEA Below
C.11.2.[Buy other HH materials / Durable Assets]	0	.190(**)	450	► Chosen
CountLESSorEQUALRuralFood PovertyLine1482Proxy2005	0	-.187(**)	450	Not relevant for PCA
AccRankInflowFromPettyTradeB610B612	0	.186(**)	450	Already covered in CashInflowFromPettyTradeB610B612
D.6. [Buy clothes KNY]	0	.186(**)	448	► Chosen
AccRankSalariedLabor	0	.185(**)	450	► Chosen
AcdRankServiceLoans	0	-.180(**)	450	► Chosen
AccRankBasics	0	-.179(**)	450	Covered mainly in AccRankFood
NonFarmSalariedLaborCash0or1	0	.179(**)	450	Covered in AccRankSalariedLabor
FarmCash0or1	0	.178(**)	450	► Chosen
C.10.2. [Buy land]	0	.178(**)	450	► Chosen
G.1.1.3.	0	-.177(**)	450	Specific reasons for Decreased Income,

Set of 166 highly correlated Variables (ordered by level of significance)	Level of Significance	Correlation Coefficient	N	Set of 47 initial variables chosen for PCA and reasons for exclusion
				main concept covered in G.1
G.1.1.6.	0	-.176(**)	450	Specific reasons for Decreased Income, main concept covered in G.1
FarmLivestockCash0or1	0	.176(**)	450	Covered in FarmCash0or1
HHTotalLandAreainHa	0	.171(**)	450	► Chosen
TotalYearlyFoodExpensePC	0	.170(**)	449	Covered in TotalHHFoodExpenseYearly
DailyFoodExpensePC	0	.170(**)	449	Covered in TotalHHFoodExpenseYearly
DailyFoodPCExpenseUS$	0	.170(**)	449	Duplicate of DailyFoodExpensePC
AccRankCasualLabor	0	-.168(**)	450	► Chosen
RoofExpensive	0	.165(**)	450	Covered in E.3.2 [Roof]
AccRankInputNonFarm	0.001	.163(**)	450	Covered in C.7.2. [Outflow reinvest nonfarm]
CopingEA	0.001	-.161(**)	450	Covered in G.8.33
D.7.1.3.	0.001	.160(**)	450	Specific forms of savings, main concept covered in D.7.1
Rank1Food	0.001	-.157(**)	450	Covered in AccRankFood
B.4.4.1. [InflowCasualLabor]	0.001	.157(**)	450	Covered in AccRankCasualLabor
B.4.4.3. [CashInflowCasualLabor]	0.001	.157(**)	450	Covered in AccRankCasualLabor
E.5.4. [Rice mill]	0.001	.156(**)	450	E.5.6 [Mobile] instead in the medium category
AccRankLoansGiven	0.001	.155(**)	450	Covered in NonFarmLoansGivenCash0or1
HHhClothing	0.001	.154(**)	448	► Chosen
AccRankAssetBuilding	0.001	.153(**)	450	► Chosen
4.a. [MFBL]	0.001	-.152(**)	450	► Chosen
B.4.3.1. [Inflow Regular Salary]	0.001	.152(**)	450	Covered in B.4.3.3.[Cash Inflow Regular Salary]
B.4.3.3.[Cash Inflow Regular Salary]	0.001	.152(**)	450	Covered AccRankSalariedLabor
E.3.4.2. [Length house]	0.001	.152(**)	449	Covered better in other dwelling indicators E31 E32 E33
B.3.1.1. [Inflow from fish]	0.001	-.150(**)	450	Covered in FarmCash0or1
AccRankLoansReceived	0.001	-.149(**)	450	► Chosen
F.2.	0.001	.149(**)	450	Only relevant for AMK clients
A.3	0.002	.162(**)	360	Only relevant for AMK clients
A.12.1. [Education level interviewee]	0.002	.149(**)	448	Use HHh education level instead
A.13.1. [Clothign expend. interviewee]	0.002	.149(**)	448	Use HHh clothing instead
Rank1Basics	0.002	-.148(**)	450	Covered mainly in AccRankFood
Rank1AssetBuilding	0.002	.148(**)	450	Covered in AccRankAssetBuilding ans C.11.2
D.2.3. [Market value rice consumed]	0.002	.148(**)	449	► Chosen
E.2.3. [Pigs]	0.002	.148(**)	436	E.2.2 [Cows] already above
E.4.4. [Bicycle]	0.002	.147(**)	450	Covered by E.4.3 [TV] instead
HHhHighEduc	0.002	.144(**)	448	► Chosen
B.2.3.3.	0.002	.144(**)	450	Covered in FarmLivestockCash0or1
E.4.7.0. [Other modest value assets]	0.002	.143(**)	450	Not specific enough, covered in Asset Ordinal
A.4.1. [Literacy of interviewee]	0.003	.142(**)	450	► Chosen

Set of 166 highly correlated Variables (ordered by level of significance)	Level of Significance	Correlation Coefficient	N	Set of 47 initial variables chosen for PCA and reasons for exclusion
HHhLiteracy	0.003	.138(**)	449	► Chosen
A.10.1. [Literacy of interviewee]	0.003	.138(**)	449	Use HHh literacy instead
C.1.1. [Food Ranked]	0.004	.140(**)	450	Covered in AccRankFood
AccRankRemittances	0.004	-.137(**)	450	► Chosen
E.1. [# plots of land]	0.004	.136(**)	448	Covered better by total value and total area of land
E.6.3. [Car]	0.004	.135(**)	450	E.5.1 [Moto] instead
D.2.2. [Rice sold by HH]	0.004	.134(**)	450	► Chosen
C.7.1.	0.005	-.249(**)	126	Only relevant for AMK clients
Rank1Services	0.006	.129(**)	450	Covered in NonFarmServicesCash0or1
E.3.4.1. [Length of house]	0.006	.128(**)	449	Dwellings covered by E.3.1 E.3.2 E.3.3
D.2.1. [Rice Yield]	0.007	.128(**)	450	► Chosen
B.8.1.2.3. [Assets pawned for cash]	0.007	-.127(**)	450	► Chosen
Rank1CasualLabor	0.007	-.126(**)	450	Covered in AccRankCasualLabor
NonFarmCasualLaborCash0or1	0.008	-.125(**)	450	Covered in AccRankCasualLabor
B.8.1.2.1. [Assets Pawned Yes or No]	0.009	-.123(**)	450	Covered in B.8.1.2.3. [Assets pawned for cash]
Rank1InputNonFarm	0.009	.123(**)	450	Covered in c72Outflowreinvestnonfarm
AccRankBuyLand	0.009	.123(**)	450	Covered in AccRankAssetBuilding
D.1.2. [Amount spent yesterday]	0.01	.121(*)	450	Significant at 0.05 level only
AccRankInputCrops	0.011	-.120(*)	450	Significant at 0.05 level only.
C.6.2.	0.011	.120(*)	450	Significant at 0.05 level only
Rank1BuyOAssets	0.012	.118(*)	450	Significant at 0.05 level only
AssetsModestValue	0.013	.117(*)	450	Significant at 0.05 level only
B.4.1.1.	0.014	-.116(*)	450	Significant at 0.05 level only
B.4.1.3.	0.014	-.115(*)	450	Significant at 0.05 level only
Rank1Remittances	0.015	-.115(*)	450	Significant at 0.05 level only
G.8.32. [Coping - Got local employment]	0.015	-.115(*)	450	Significant at 0.05 level only
E.3.4.3. [Width house]	0.016	.114(*)	449	Significant at 0.05 level only
RoofMedium	0.016	.113(*)	450	Significant at 0.05 level only
B.2.2.1. [Pig]	0.017	.112(*)	450	Significant at 0.05 level only
AccRankHeatlh	0.02	-.110(*)	450	Significant at 0.05 level only
B.6.1.2.1. [Sales in shop]	0.02	.110(*)	450	Significant at 0.05 level only
B.6.1.2.3. [Cash Sales in shop]	0.02	.110(*)	450	Significant at 0.05 level only
Rank1BuyGold	0.02	.109(*)	450	Significant at 0.05 level only
E.5.7.0. [Other mid assets]	0.02	.109(*)	450	Significant at 0.05 level only
G.1.1.2.	0.023	-.107(*)	450	Significant at 0.05 level only
B.4.4.4.	0.026	.280(*)	**63**	Less than 450 number of cases and significant at 0.05 level only
D.5.	0.026	.119(*)	348	Less than 450 number of cases and significant at 0.05 level only
B.3.2.1. [Wood collection]	0.026	-.105(*)	450	Significant at 0.05 level only
B.5.1.0.3. [Cash inflow food processing]	0.026	.105(*)	450	Significant at 0.05 level only
B.5.1.0.1. [Inflow food processing Y/N]	0.027	.104(*)	450	Significant at 0.05 level only
AMKClientHighEduc	0.029	.116(*)	358	Significant at 0.05 level only
AccRankClothing	0.03	-.103(*)	450	Significant at 0.05 level only

Set of 166 highly correlated Variables (ordered by level of significance)	Level of Significance	Correlation Coefficient	N	Set of 47 initial variables chosen for PCA and reasons for exclusion
Rank1ServiceLoans	0.03	-.102(*)	450	Significant at 0.05 level only
B.2.1.3. [Cash inflow from Pigs]	0.03	.102(*)	450	Significant at 0.05 level only
NUMCSA	0.031	-.102(*)	450	Significant at 0.05 level only
AccRankFarmInvestments	0.031	-.102(*)	450	Significant at 0.05 level only
G.13.	0.032	.101(*)	450	Significant at 0.05 level only
B.2.1.1.	0.034	.100(*)	450	Significant at 0.05 level only
E.5.5. [Generator]	0.035	.099(*)	450	Significant at 0.05 level only
F.4. [Number of active loans]	0.038	-.098(*)	450	Significant at 0.05 level only
AccRankCeremonies	0.042	.096(*)	450	Significant at 0.05 level only
E.2.4. [Goats]	0.042	.096(*)	443	Significant at 0.05 level only
E.6.4. [Tractor]	0.043	.095(*)	450	Significant at 0.05 level only
D.3. [Buy rice for consumption]	0.044	-.095(*)	450	Significant at 0.05 level only
E.5.3. [Water pump]	0.047	.094(*)	450	Significant at 0.05 level only.

Annex 31: PCA Stage 2 and 3 - Tests and Results

Test 1 – Complete 47 variables

KMO and Bartlett's Test(a)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.643
Bartlett's Test of Sphericity	Approx. Chi-Square	2857.364
	df	1081
	Sig.	.000

a Only cases for which A.1. = No are used in the analysis phase.

Communalities(a)

	Initial	Extraction
G.2.	1.000	.819
4.a.	1.000	.702
A.4.1.	1.000	.873
NUMADULTS	1.000	.879
HHhLiteracy	1.000	.902
HHhHighEduc	1.000	.865
HHhClothing	1.000	.823
ClothingPC	1.000	.807
B.8.1.2.3.	1.000	.697
NonFarmServicesCash0or1	1.000	.773
NonLoansGivenCash0or1	1.000	.769
FarmCash0or1	1.000	.712
AccRankCasualLabor	1.000	.673
AccRankSalariedLabor	1.000	.750
CashInflowFromPettyTradeB610B612	1.000	.818
AccRankRemittances	1.000	.665
AccRankLoansReceived	1.000	.704
C.7.2.	1.000	.768
C.10.2.	1.000	.645
C.11.2.	1.000	.776
C.12.2.	1.000	.614
AccRankFood	1.000	.729
AcdRankServiceLoans	1.000	.610
AccRankAssetBuilding	1.000	.818
D.2.1.	1.000	.947
D.2.2.	1.000	.896
D.2.3.	1.000	.804
D.6.	1.000	.536
D.7.1.	1.000	.709
TotalHHFoodExpenseYearly	1.000	.766
E.3.1.	1.000	.753
E.3.2.	1.000	.817
E.3.3.	1.000	.803
E.4.3.	1.000	.503
E.5.6.	1.000	.789
E.6.1.	1.000	.699
E.7.	1.000	.649
HHTotalLandAreainHa	1.000	.816
HHTotalValueLandinRiel	1.000	.785
AssetOrdinal	1.000	.790
G.1.	1.000	.743
G.3	1.000	.825

	Initial	Extraction
G.9.	1.000	.726
G.11.	1.000	.732
G.12.	1.000	.784
CopingBorrowing	1.000	.851
CopingReduceSold	1.000	.688

Extraction Method: Principal Component Analysis.

a Only cases for which A.1. = No are used in the analysis phase.

Total Variance Explained(a)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.464	20.136	20.136	9.464	20.136	20.136
2	4.628	9.847	29.982	4.628	9.847	29.982
3	3.355	7.138	37.120	3.355	7.138	37.120
4	2.539	5.402	42.522	2.539	5.402	42.522
5	2.283	4.858	47.380	2.283	4.858	47.380
6	2.164	4.605	51.985	2.164	4.605	51.985
7	1.868	3.974	55.960	1.868	3.974	55.960
8	1.624	3.456	59.415	1.624	3.456	59.415
9	1.554	3.307	62.722	1.554	3.307	62.722
10	1.442	3.069	65.791	1.442	3.069	65.791
11	1.311	2.790	68.581	1.311	2.790	68.581
12	1.210	2.574	71.155	1.210	2.574	71.155
13	1.119	2.381	73.537	1.119	2.381	73.537
14	1.040	2.212	75.749	1.040	2.212	75.749
15	.952	2.025	77.774			
16	.936	1.991	79.765			
17	.856	1.821	81.586			
18	.780	1.661	83.246			
19	.760	1.617	84.863			
20	.655	1.395	86.258			
21	.595	1.267	87.524			
22	.579	1.233	88.757			
23	.499	1.062	89.820			
24	.476	1.013	90.833			
25	.424	.902	91.735			
26	.399	.848	92.583			
27	.381	.811	93.395			
28	.346	.737	94.132			
29	.322	.686	94.817			
30	.315	.671	95.488			
31	.284	.605	96.093			
32	.254	.540	96.633			
33	.237	.504	97.138			
34	.192	.409	97.547			
35	.186	.396	97.943			
36	.162	.345	98.288			
37	.148	.314	98.602			
38	.133	.283	98.885			
39	.102	.217	99.102			
40	.087	.186	99.288			
41	.079	.168	99.455			
42	.070	.150	99.605			
43	.060	.127	99.732			
44	.052	.112	99.844			
45	.038	.082	99.925			
46	.032	.069	99.994			
47	.003	.006	100.000			

Extraction Method: Principal Component Analysis.

a Only cases for which A.1. = No are used in the analysis phase.

Component Matrix(a,b)

	Component													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
G.2.	.657	-.503	.128	.002	-.097	.070	.018	-.188	.010	.101	.185	-.018	-.145	-.005
4.a.	-.221	-.106	-.080	.017	.118	.293	-.406	-.262	-.140	.112	.388	-.281	.073	.185
A.4.1.	.467	.332	.165	-.020	-.090	.354	.229	-.408	.295	-.170	-.104	.123	-.147	.046
NUMADULTS	.540	.317	.077	-.268	-.212	.269	.267	-.401	.145	-.079	-.091	.046	-.124	-.078
HHhLiteracy	.360	-.031	-.285	-.106	-.037	-.648	.325	-.318	.054	-.091	.105	.041	.166	.015
HHhHighEduc	.344	-.048	-.344	-.050	.040	-.621	.343	-.204	.054	-.007	.158	-.030	.178	.130
HHhClothing	.420	.283	.270	.156	.012	-.327	-.267	.182	.274	-.159	-.232	-.298	.113	-.044
ClothingPC	.523	.291	.237	-.085	-.149	-.137	-.038	.215	.380	-.044	-.226	-.229	.217	.016
B.8.1.2.3.	.102	.254	-.007	-.049	.149	.445	.168	-.143	.033	-.164	-.176	.020	.472	.262
NonFarmServices Cash0or1	.441	-.134	.398	-.119	.615	-.022	.008	.046	.026	-.045	-.051	-.029	.027	-.009
NonLoansGiven Cash0or1	.206	-.149	.038	-.166	.069	-.002	.524	.274	.221	.296	.333	-.239	-.115	-.058
FarmCash0or1	.281	-.066	-.080	.286	-.021	.288	-.005	-.164	.105	-.025	.209	-.187	.098	-.574
AccRankCasualLabor	-.421	-.155	-.220	.151	.014	.228	.059	-.146	.431	.128	-.162	-.253	-.135	.116
AccRankSalariedLabor	.206	.119	.013	-.405	-.175	.221	.247	.360	-.081	-.316	.182	.168	-.168	.253
CashInflowFromPetty TradeB610B612	.285	-.142	.328	-.250	.657	.067	-.110	.153	-.027	-.100	-.147	-.021	-.183	-.089
AccRankRemittances	-.013	-.059	-.075	-.458	-.464	.092	-.065	.211	-.301	.204	-.187	.055	.005	.053
AccRankLoansReceived	-.004	.472	.351	.328	.013	-.179	.011	.123	-.194	.281	.207	.150	-.101	.105
C.7.2.	.393	-.369	.344	-.143	.538	-.080	-.037	-.003	.068	-.011	.081	.132	.012	-.112
C.10.2.	.233	-.251	.125	.270	-.154	.053	.067	-.093	-.466	-.032	-.290	-.153	.222	-.158
C.11.2.	.417	-.125	.163	.552	-.032	.124	.422	.075	-.081	.012	.003	.210	-.062	.032
C.12.2.	.243	-.087	-.066	-.014	.126	-.319	-.227	-.436	.097	.358	-.010	.187	-.018	.102
AccRankFood	-.340	.069	-.302	-.325	-.072	.025	-.007	.155	.433	-.026	.033	.379	.088	-.203
AcdRankServiceLoans	-.165	.535	.183	.213	-.060	-.089	.106	.212	.214	.233	-.215	-.028	-.049	.025
AccRankAssetBuilding	.315	-.200	.086	.707	-.237	.119	.258	-.016	-.106	-.018	-.131	.050	-.027	-.049
D.2.1.	.523	.249	-.694	.149	.198	.086	-.092	.078	.002	.141	-.060	.075	-.124	-.045
D.2.2.	.457	.173	-.696	.187	.201	-.051	-.038	.124	-.015	.177	-.107	.023	-.182	-.034
D.2.3.	.535	.327	-.490	.014	.138	.310	-.141	-.015	-.012	.032	.014	.169	.065	-.046
D.6.	.288	.113	.091	.258	-.032	-.107	-.222	.165	.183	-.194	.074	.393	.212	.026
D.7.1.	.532	-.375	.076	.256	.046	-.040	-.049	.182	-.029	-.021	.013	.378	.063	-.160
TotalHHFoodExpenseYearly	.650	.421	.221	-.006	.133	.187	-.005	-.027	.007	.175	.159	-.078	-.040	.021
E.3.1.	.488	.377	.117	.069	-.190	-.086	-.456	-.047	-.015	-.237	.089	.036	-.181	.028
E.3.2.	.677	.323	-.047	-.020	-.309	-.081	-.287	-.062	-.006	-.121	.094	-.059	-.179	-.072
E.3.3.	.645	.307	.196	.018	-.281	-.147	-.076	-.004	.002	-.182	.256	-.137	-.177	.007
E.4.3.	.632	-.069	.011	-.096	-.141	.003	.030	.020	-.081	.085	-.030	.012	-.055	.223
E.5.6.	.363	-.009	.022	-.471	-.318	.082	.065	.176	-.071	.392	-.010	-.006	.158	-.329
E.6.1.	.643	.209	.150	-.127	.213	-.011	.265	.036	-.267	-.077	.043	-.069	.034	.025
E.7.	.516	.204	.114	-.203	-.048	.027	-.187	-.224	-.069	.314	-.173	.118	.225	-.016
HHTotalLandAreainHa	.578	.268	-.572	.057	.149	.024	-.053	.187	-.051	-.035	.034	-.104	-.022	-.052
HHTotalValueLandinRiel	.396	.137	-.589	.138	.177	.043	.103	.231	-.114	-.146	-.036	-.247	.144	.171
AssetOrdinal	.761	.196	.064	-.284	.136	.086	.063	-.045	-.169	.044	.008	-.046	.141	-.055
G.1.	.507	-.530	-.028	.012	-.089	.018	-.046	.120	.204	.261	-.210	-.023	-.110	.114
G.3	.623	-.498	.144	.131	-.081	.136	-.029	.063	.248	.123	-.049	-.066	-.084	.178
G.9.	.651	-.287	.102	-.078	-.145	-.235	-.091	-.012	-.139	.041	-.274	-.049	-.106	.092
G.11.	-.404	.596	.178	.122	.169	-.039	.007	-.015	-.064	.341	-.035	.049	-.063	.093
G.12.	.307	-.123	.202	.205	-.215	.147	-.155	.231	.196	.176	.421	-.030	.420	.148
CopingBorrowing	-.189	.801	.224	.108	.143	.079	.130	-.061	-.027	.225	.005	.085	.037	.056
CopingReduceSold	-.390	.570	.173	.020	-.039	-.241	.167	.032	-.061	-.046	-.004	-.136	-.051	-.255

Extraction Method: Principal Component Analysis.

a 14 components extracted.

b Only cases for which A.1. = No are used in the analysis phase.

The analysis of the component matrix of test 1 indicates the following indicators should be excluded:

Indicators Excluded	**Reasons for Exclusion**
Minutes from Branch to Location [4.a].	Component loading < 0.300
Other inflows: Assets Pawned for Cash [B.8.1.2.3.]	Component loading < 0.300
Other Inflows: Inflow Back from Loans Given received in cash [NonLoansGiven Cash0or1]	Component loading < 0.300
Inflow from Cash Activities received in Cash [FarmCash0or1]	Component loading < 0.300

Indicators Excluded	Reasons for Exclusion
Cash Inflows from Salaried Labor ranked 1,2, or 3 in the household [AccRankSalariedLabor]	Component loading < 0.300
Cash Inflows from petty trade and sales in shops or stalls [CashInflowFromPetty TradeB610B612]	Component loading < 0.300
Cash Inflows from Remittances ranked 1,2, or 3 in the household [AccRankRemittances]	Component loading < 0.300
Cash Inflows from Loans Received ranked 1,2, or 3 in the household [AccRankLoansReceived]	Component loading < 0.300
Outflows: Buying Land [C.10.2.]	Component loading < 0.300
Outflows: Buying Gold or Jewelry C.12.2.	Component loading < 0.300
Cash Inflows from Services ranked 1,2, or 3 in the household [AcdRankServiceLoans]	Component loading < 0.300
Number of years HH bought new clothes for all members in HH in the last 2 years [D.6.]	Component loading < 0.300
Copying strategies in case of crisis include borrowing at costs or no cost [CopingBorrowing]	Component loading < 0.300

Test 2 –34 variables

KMO and Bartlett's Test(a)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.730
Bartlett's Test of Sphericity	Approx. Chi-Square	2172.711
	df	561
	Sig.	.000

a Only cases for which A.1. = No are used in the analysis phase.

Communalities(a)

	Initial	Extraction
G.2.	1.000	.765
A.4.1.	1.000	.906
NUMADULTS	1.000	.881
HHhLiteracy	1.000	.913
HHhHighEduc	1.000	.844
HHhClothing	1.000	.818
ClothingPC	1.000	.835
NonFarmServicesCash0or1	1.000	.765
AccRankCasualLabor	1.000	.750
C.7.2.	1.000	.759
C.11.2.	1.000	.782
AccRankFood	1.000	.644
AccRankAssetBuilding	1.000	.818
D.2.1.	1.000	.926
D.2.2.	1.000	.858
D.2.3.	1.000	.819
D.7.1.	1.000	.611
TotalHHFoodExpenseYearly	1.000	.695
E.3.1.	1.000	.775
E.3.2.	1.000	.849
E.3.3.	1.000	.806
E.4.3.	1.000	.463
E.5.6.	1.000	.781
E.6.1.	1.000	.715
E.7.	1.000	.594

HHTotalLandAreainHa	1.000	.821
HHTotalValueLandinRiel	1.000	.684
AssetOrdinal	1.000	.807
G.1.	1.000	.726
G.3	1.000	.816
G.9.	1.000	.704
G.11.	1.000	.561
G.12.	1.000	.662
CopingReduceSold	1.000	.685

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

Total Variance Explained(a)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.951	26.327	26.327	8.951	26.327	26.327
2	3.640	10.706	37.033	3.640	10.706	37.033
3	2.982	8.771	45.804	2.982	8.771	45.804
4	1.951	5.739	51.543	1.951	5.739	51.543
5	1.765	5.190	56.734	1.765	5.190	56.734
6	1.649	4.849	61.582	1.649	4.849	61.582
7	1.583	4.655	66.237	1.583	4.655	66.237
8	1.183	3.480	69.717	1.183	3.480	69.717
9	1.128	3.317	73.034	1.128	3.317	73.034
10	1.007	2.961	75.995	1.007	2.961	75.995
11	.904	2.659	78.654			
12	.869	2.555	81.208			
13	.748	2.199	83.407			
14	.678	1.993	85.400			
15	.577	1.696	87.096			
16	.515	1.513	88.609			
17	.466	1.370	89.979			
18	.399	1.174	91.153			
19	.385	1.134	92.287			
20	.341	1.003	93.290			
21	.337	.991	94.281			
22	.307	.901	95.182			
23	.256	.754	95.936			
24	.254	.748	96.684			
25	.217	.638	97.322			
26	.195	.573	97.895			
27	.150	.442	98.337			
28	.133	.391	98.728			
29	.126	.369	99.097			
30	.099	.291	99.388			
31	.088	.260	99.648			
32	.069	.202	99.850			
33	.047	.139	99.989			
34	.004	.011	100.000			

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

Component Matrix(a,b)

	Component									
	1	2	3	4	5	6	7	8	9	10
G.2.	.633	-.538	-.076	-.024	-.092	.102	.137	-.083	-.141	-.063
A.4.1.	.482	.159	.319	.255	-.223	-.082	.536	.270	-.169	.192
NUMADULTS	.556	.223	.317	.036	-.261	.032	.574	.119	-.051	.071
HHhLiteracy	.363	.104	-.219	-.573	.447	.141	.389	.047	-.019	.140
HHhHighEduc	.342	.099	-.329	-.540	.460	.111	.278	.087	-.004	.090
HHhClothing	.429	.120	.346	.054	.388	.148	-.408	.394	.054	-.020
ClothingPC	.535	.113	.360	-.023	.114	.204	-.161	.460	.326	.080
NonFarmServicesCash0or1	.417	-.285	.193	-.257	-.022	-.520	-.229	.227	-.173	.042
AccRankCasualLabor	-.426	-.035	-.261	.248	-.163	.090	.196	.587	-.037	-.137
C.7.2.	.360	-.471	.084	-.325	-.088	-.430	-.216	.086	-.150	.162
C.11.2.	.400	-.303	-.097	.465	.318	-.263	.270	-.118	.192	.104
AccRankFood	-.344	.221	-.157	-.208	-.337	.317	-.032	.075	.016	.434
AccRankAssetBuilding	.306	-.321	-.160	.598	.346	-.050	.276	-.107	.162	-.029
D.2.1.	.545	.493	-.575	.121	-.117	-.083	-.101	.006	-.074	-.060
D.2.2.	.474	.435	-.623	.093	.025	-.083	-.107	.045	.007	-.162
D.2.3.	.557	.469	-.316	.127	-.332	-.082	-.064	-.096	-.144	.145
D.7.1.	.501	-.426	-.200	.106	.102	-.058	-.145	-.161	.057	.253
TotalHHFoodExpenseYearly	.669	.223	.327	.132	-.139	-.224	-.039	.037	.000	.034
E.3.1.	.509	.274	.309	.165	.115	.266	-.213	-.118	-.418	.002
E.3.2.	.696	.305	.193	.104	.065	.364	-.080	-.147	-.216	-.108
E.3.3.	.662	.158	.360	.100	.255	.261	-.034	-.160	-.192	.080
E.4.3.	.635	-.117	-.018	-.084	-.063	.075	.042	-.026	-.086	-.140
E.5.6.	.359	.011	.132	-.236	-.397	.287	.064	-.212	.538	-.038
E.6.1.	.650	.098	.184	-.171	.047	-.435	.080	-.099	.107	-.002
E.7.	.531	.116	.251	-.102	-.266	.007	.020	-.063	.242	-.303
HHTotalLandAreainHa	.593	.489	-.419	.062	.000	-.052	-.154	.027	.100	.117
HHTotalValueLandinRiel	.403	.374	-.521	.067	.145	-.138	-.100	.131	.194	.029
AssetOrdinal	.766	.145	.182	-.213	-.193	-.241	.019	-.080	.129	-.036
G.1.	.486	-.505	-.276	-.004	-.176	.217	-.089	.182	.064	-.187
G.3	.596	-.574	-.126	.165	-.107	.135	-.063	.230	-.040	-.004
G.9.	.645	-.309	-.002	-.143	.126	.170	-.023	-.047	.066	-.344
G.11.	-.378	.428	.315	.182	.076	-.233	-.098	.020	.118	-.137
G.12.	.310	-.286	.091	.238	-.042	.195	-.258	-.073	.250	.495
CopingReduceSold	-.367	.471	.416	.018	.315	-.103	.046	.014	.211	.008

Extraction Method: Principal Component Analysis.
a 10 components extracted.
b Only cases for which A.1. = No are used in the analysis phase.

The analysis of the component matrix of test 2 indicates the following indicators should be excluded:

Indicators Excluded	**Reasons for Exclusion**
Number of income earners in the HH [A.4.1.]	Duplicates information with NUMADULTS and has lower component loading: 0.482 vs. 0.557
Highest Education finished by the head of household [HHhHighEduc]	Duplicates information with HHhLiteracyand has lower component loading 0.342 vs.0.363
Cash Outflows for Asset Building ranked 1,2, or 3 in the household expenditures [AccRankAssetBuilding]	Duplicates information with C.11.2 [Buying household materials / durable assets]. C.11.2 retained because the component loading is higher (0.400 vs. 0.306)
Number of Kg of rice produced in the last year [D.2.1.]	Poverty studies of rural households have found rich households that do not produce rice. "Near-landleness" (i.e. <0.5 Ha per HH) is more the issue that landlessness.[262]

[262] The majority of landless households do not obtain their main source of income from agriculture and thus, it is possible to find both relatively prosperous households and also impoverished households. Further information in: Ramamurthy, Bhargavi Sik Boreak, Per Ronnås and Sok Hach (2001) Cambodia 1999-2000: Land, Labour and Rural Livelihood in Focus Cambodia Development Resource Institute (CDRI) Working Paper 21.

Indicators Excluded	Reasons for Exclusion
Number of Kg consumed (from the rice yield) [D.2.2.]	Poverty studies of rural households have found rich households that do not produce rice. "Near-landleness" (i.e. <0.5 Ha per HH) is more the issue that landlessness
Market value of the rice consumed [D.2.3.]	Poverty studies of rural households have found rich households that do not produce rice. "Near-landleness" (i.e. <0.5 Ha per HH) is more the issue that landlessness
Mobile phone [E.5.6.]	Television and [E.4.3] and Motorcycle [E.6.1] have higher component loadings (0.635 and 0.650 vs. 0.359)
Toilet in the HH [E.7.]	Type of roof [E.3.2] and type of walls [E.3.3] have higher component loadings (0.696 and 0.662 vs. 0.531)
Total Value of Land Owned [HHTotalValueLandinRiel]	Duplicates information with HHTotalLandAreainHa (which has higher component loadings: 0.593 vs.0.403)
Overall household economic situation in the last 12 months [G.1.]	May duplicate information with G2 and G3 (and has lower component loadings). Also it measures "economic situation" as opposed to "household income"

Test 3 – 24 variables

KMO and Bartlett's Test(a)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.804
Bartlett's Test of Sphericity	Approx. Chi-Square	1014.104
	df	276
	Sig.	.000

a Only cases for which A.1. = No are used in the analysis phase.

Communalities(a)

	Initial	Extraction
G.2.	1.000	.743
NUMADULTS	1.000	.696
HHhLiteracy	1.000	.645
HHhClothing	1.000	.846
ClothingPC	1.000	.773
NonFarmServicesCash0or1	1.000	.725
AccRankCasualLabor	1.000	.724
C.7.2.	1.000	.764
C.11.2.	1.000	.686
AccRankFood	1.000	.579
D.7.1.	1.000	.586
TotalHHFoodExpenseYearly	1.000	.776
E.3.1.	1.000	.666
E.3.2.	1.000	.795
E.3.3.	1.000	.762
E.4.3.	1.000	.480
E.6.1.	1.000	.744
HHTotalLandAreainHa	1.000	.381
AssetOrdinal	1.000	.815
G.3	1.000	.814
G.9.	1.000	.640
G.11.	1.000	.644
G.12.	1.000	.543
CopingReduceSold	1.000	.695

Extraction Method: Principal Component Analysis.

a Only cases for which A.1. = No are used in the analysis phase.

Total Variance Explained(a)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.216	30.067	30.067	7.216	30.067	30.067
2	2.910	12.124	42.191	2.910	12.124	42.191
3	1.633	6.805	48.996	1.633	6.805	48.996
4	1.489	6.204	55.200	1.489	6.204	55.200
5	1.191	4.962	60.162	1.191	4.962	60.162
6	1.081	4.505	64.667	1.081	4.505	64.667
7	1.002	4.175	68.841	1.002	4.175	68.841
8	.975	4.062	72.903			
9	.804	3.349	76.252			
10	.771	3.212	79.464			
11	.746	3.108	82.572			
12	.619	2.578	85.150			
13	.570	2.374	87.524			
14	.456	1.902	89.426			
15	.426	1.776	91.201			
16	.380	1.582	92.783			
17	.354	1.475	94.258			
18	.301	1.253	95.511			
19	.249	1.037	96.548			
20	.202	.843	97.391			
21	.186	.777	98.168			
22	.170	.707	98.875			
23	.158	.657	99.532			
24	.112	.468	100.000			

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

Component Matrix(a,b)

	Component						
	1	2	3	4	5	6	7
G.2.	.672	-.496	-.148	-.028	-.143	.046	.028
NUMADULTS	.526	.291	-.041	-.341	-.280	.293	.229
HHhLiteracy	.325	.031	-.111	-.529	.283	-.308	.268
HHhClothing	.479	.378	.007	.456	.428	-.054	.282
ClothingPC	.563	.334	-.045	.238	.329	.238	.348
NonFarmServicesCash0or1	.487	-.220	.597	.120	.220	.139	-.026
AccRankCasualLabor	-.485	-.167	-.182	.118	-.158	.468	.411
C.7.2.	.436	-.428	.520	.038	.296	.080	-.161
C.11.2.	.399	-.254	.080	.197	-.458	-.407	.205
AccRankFood	-.399	.077	-.261	-.226	.388	.269	-.268
D.7.1.	.535	-.444	-.063	.105	.092	-.260	-.109
TotalHHFoodExpenseYearly	.665	.339	.229	.095	-.275	.268	-.101
E.3.1.	.528	.445	-.259	.193	.029	-.046	-.285
E.3.2.	.680	.428	-.370	-.009	-.006	-.038	-.102
E.3.3.	.710	.400	-.217	.112	-.063	-.158	-.094
E.4.3.	.641	-.091	-.109	-.136	-.130	.097	.058
E.6.1.	.666	.159	.432	-.277	-.102	-.026	-.023
HHTotalLandAreainHa	.465	.234	-.176	-.217	-.015	.060	-.168
AssetOrdinal	.756	.179	.263	-.302	-.042	.191	-.112
G.3	.626	-.516	-.186	.237	-.031	.205	.149
G.9.	.675	-.200	-.118	-.072	.158	-.204	.243
G.11.	-.386	.517	.319	.272	-.227	-.031	.009
G.12.	.346	-.181	-.176	.510	-.060	.085	-.298
CopingReduceSold	-.349	.644	.269	.099	.030	-.215	.175

Extraction Method: Principal Component Analysis.

a 7 components extracted.
b Only cases for which A.1. = No are used in the analysis phase.

Indicators Excluded	Reasons for Exclusion
Expenditures in Clothing by head of household [HHhClothing]	Duplicates information with Clothing PC and has lower component loadings (0.479 vs. 0.563).

Test 4 – 23 variables

KMO and Bartlett's Test(a)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.813
Bartlett's Test of Sphericity	Approx. Chi-Square	939.799
	df	253
	Sig.	.000

a Only cases for which A.1. = No are used in the analysis phase.

Communalities(a)

	Initial	Extraction
G.2.	1.000	.726
NUMADULTS	1.000	.666
HHhLiteracy	1.000	.586
ClothingPC	1.000	.463
NonFarmServicesCash0or1	1.000	.718
AccRankCasualLabor	1.000	.694
C.7.2.	1.000	.770
C.11.2.	1.000	.693
AccRankFood	1.000	.572
D.7.1.	1.000	.587
TotalHHFoodExpenseYearly	1.000	.751
E.3.1.	1.000	.661
E.3.2.	1.000	.804
E.3.3.	1.000	.773
E.4.3.	1.000	.481
E.6.1.	1.000	.734
HHTotalLandAreainHa	1.000	.348
AssetOrdinal	1.000	.783
G.3	1.000	.797
G.9.	1.000	.564
G.11.	1.000	.652
G.12.	1.000	.544
CopingReduceSold	1.000	.637

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

Total Variance Explained(a)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.015	30.499	30.499	7.015	30.499	30.499
2	2.803	12.185	42.683	2.803	12.185	42.683
3	1.633	7.101	49.784	1.633	7.101	49.784
4	1.392	6.053	55.837	1.392	6.053	55.837
5	1.090	4.741	60.578	1.090	4.741	60.578

6	1.071	4.655	65.233	1.071	4.655	65.233
7	.975	4.239	69.472			
8	.852	3.702	73.174			
9	.803	3.492	76.666			
10	.755	3.282	79.949			
11	.700	3.044	82.992			
12	.617	2.685	85.677			
13	.562	2.442	88.119			
14	.443	1.925	90.044			
15	.409	1.780	91.824			
16	.377	1.639	93.464			
17	.348	1.513	94.977			
18	.269	1.170	96.147			
19	.229	.995	97.143			
20	.191	.830	97.972			
21	.183	.794	98.767			
22	.169	.734	99.501			
23	.115	.499	100.000			

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

Component Matrix(a,b)

	Component					
	1	2	3	4	5	6
G.2.	.695	-.454	-.148	.026	-.049	.107
NUMADULTS	.532	.355	-.038	-.180	-.043	.470
HHhLiteracy	.329	.062	-.108	-.620	-.242	-.135
ClothingPC	.529	.294	-.047	.075	.263	.141
NonFarmServicesCash0or1	.488	-.221	.596	.043	.263	-.061
AccRankCasualLabor	-.483	-.194	-.183	.112	.104	.604
C.7.2.	.445	-.428	.519	-.066	.287	-.183
C.11.2.	.408	-.240	.079	.310	-.605	.038
AccRankFood	-.398	.073	-.260	-.313	.479	-.117
D.7.1.	.546	-.436	-.064	.055	-.087	-.289
TotalHHFoodExpenseYearly	.659	.373	.229	.248	.122	.223
E.3.1.	.508	.448	-.260	.228	.142	-.249
E.3.2.	.667	.455	-.370	.044	.036	-.108
E.3.3.	.695	.420	-.217	.174	-.064	-.179
E.4.3.	.649	-.054	-.108	-.082	-.051	.190
E.6.1.	.668	.205	.435	-.199	-.110	.068
HHTotalLandAreainHa	.464	.271	-.174	-.158	.064	-.001
AssetOrdinal	.760	.234	.266	-.220	.119	.133
G.3	.635	-.516	-.188	.197	.102	.205
G.9.	.677	-.187	-.118	-.157	-.158	-.085
G.11.	-.405	.495	.318	.366	-.084	.026
G.12.	.346	-.194	-.179	.531	.224	-.151
CopingReduceSold	-.377	.613	.268	.087	-.166	-.111

Extraction Method: Principal Component Analysis.
a 6 components extracted.
b Only cases for which A.1. = No are used in the analysis phase.

Indicators Excluded	**Reasons for Exclusion**
Cash inflows from nonfarm activities in services (Yes or No question)[NonFarmServicesCash0or1]	Duplicates information with C.7. 2 [Household outflows include reinvest/inputs for nonfarm income activities] C.7.2 is more general (includes services but also manufacturing activities)

Test 5 – 22 variables

KMO and Bartlett's Test(a)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.818
Bartlett's Test of Sphericity	Approx. Chi-Square	877.764
	df	231
	Sig.	.000

a Only cases for which A.1. = No are used in the analysis phase.

Communalities(a)

	Initial	Extraction
G.2.	1.000	.743
NUMADULTS	1.000	.659
HHhLiteracy	1.000	.583
ClothingPC	1.000	.475
AccRankCasualLabor	1.000	.731
C.7.2.	1.000	.628
C.11.2.	1.000	.568
AccRankFood	1.000	.642
D.7.1.	1.000	.599
TotalHHFoodExpenseYearly	1.000	.762
E.3.1.	1.000	.688
E.3.2.	1.000	.826
E.3.3.	1.000	.787
E.4.3.	1.000	.476
E.6.1.	1.000	.790
HHTotalLandAreainHa	1.000	.362
AssetOrdinal	1.000	.823
G.3	1.000	.795
G.9.	1.000	.609
G.11.	1.000	.644
G.12.	1.000	.649
CopingReduceSold	1.000	.635

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

Total Variance Explained(a)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.805	30.934	30.934	6.805	30.934	30.934
2	2.768	12.583	43.517	2.768	12.583	43.517
3	1.412	6.417	49.933	1.412	6.417	49.933
4	1.380	6.273	56.207	1.380	6.273	56.207
5	1.072	4.873	61.080	1.072	4.873	61.080
6	1.036	4.707	65.787	1.036	4.707	65.787
7	.946	4.302	70.089			
8	.832	3.783	73.872			
9	.772	3.509	77.381			
10	.741	3.369	80.751			
11	.699	3.178	83.929			
12	.588	2.671	86.600			
13	.508	2.309	88.908			
14	.431	1.957	90.865			
15	.409	1.861	92.726			

16	.348	1.584	94.310			
17	.318	1.444	95.754			
18	.260	1.182	96.936			
19	.198	.899	97.835			
20	.186	.846	98.681			
21	.171	.775	99.457			
22	.120	.543	100.000			

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

Component Matrix(a,b)

	Component					
	1	2	3	4	5	6
G.2.	.692	-.478	.079	-.021	.081	-.149
NUMADULTS	.545	.335	-.116	-.132	.432	-.177
HHhLiteracy	.335	.045	-.312	-.534	-.211	-.203
ClothingPC	.531	.287	.137	-.017	.217	.211
AccRankCasualLabor	-.484	-.192	.247	-.047	.592	-.214
C.7.2.	.407	-.388	-.388	.188	-.073	.347
C.11.2.	.406	-.251	-.031	.434	-.141	-.362
AccRankFood	-.390	.068	.111	-.487	.040	.485
D.7.1.	.541	-.452	.026	.056	-.294	.109
TotalHHFoodExpenseYearly	.656	.377	-.025	.324	.260	.125
E.3.1.	.518	.431	.433	-.050	-.211	-.010
E.3.2.	.690	.417	.342	-.199	-.108	-.093
E.3.3.	.712	.390	.276	.013	-.200	-.102
E.4.3.	.655	-.079	-.022	-.077	.166	-.083
E.6.1.	.661	.215	-.525	.148	.051	.081
HHTotalLandAreainHa	.477	.248	.037	-.222	.023	.146
AssetOrdinal	.755	.236	-.355	-.012	.179	.199
G.3	.627	-.536	.246	.064	.222	-.016
G.9.	.676	-.207	-.027	-.172	-.143	-.242
G.11.	-.410	.528	.015	.438	.001	-.065
G.12.	.350	-.214	.430	.343	-.058	.417
CopingReduceSold	-.373	.636	-.136	.208	-.154	-.079

Extraction Method: Principal Component Analysis.
a 6 components extracted.
b Only cases for which A.1. = No are used in the analysis phase.

Therefore the final AMK-PCA will include 22 indicators.

Annex 32: Variables in the AMK-PCA Wellbeing Score

The corresponding questions or calculations form the survey tool that conform each of the variable of the AMK-PCA Wellbeing Score are the following.

PHYSICAL ASSETS:

1. TOTAL CULTIVABLE LAND AREA OWNED BY THE HOUSEHOLD [*Computed Variable:* HHTotalLandAreaHa] ➔ Sum of the lands of each of the plots of cultivable land own by the household in Hectares (up to a maximum of six plots per household) = Question E.1.2 (converted in Hectares) + Question E.2.2 (converted in Hectares) + Question E.3.2 (converted in Hectares) + Question E.4.2 (converted in Hectares) + Question E.5.2 (converted in Hectares) + Question E.6.2 (converted in Hectares)
2. FLOOR MATERIALS FOR THE HOUSE/DWELLING ➔ Question E.3.1
3. WALL MATERIALS FOR THE HOUSE/DWELLING ➔ Question E.3.2
4. ROOF MATERIALS FOR THE HOUSE/DWELLING ➔ Question E.3.3
5. HOUSEHOLD OWNS A TELEVISION ➔ Question E.4.3
6. HOUSEHOLD OWNS A MOTORCYCLE ➔ Questions E.6.1
7. HOUSEHOLD OWNERSHIP OF ASSETS OF MODEST, MID OR HIGH VALUE [*Computed Variable:* AssetOrdinal]. ➔ Values of 1, 2, or 3, depending on the household's ownership of at least one asset of modest value (i.e. less than US$100; Questions E.4.), mid-value (i.e. between US$100-US$500; Questions E.5) or high value (i.e. over US$500; Questions E.6). Examples of assets of modest value include radios, bicycles, black and white television sets (battery operated), simple boats, ox-carts and simple agricultural tools. Examples of mid-value assets include water pumps, rice mill machines, generators, expensive tools, boats or mobile phones. Examples of assets of high value include plowing machine, tractor, (quasi) professional music/karaoke machine, motorcycle, car, pick up or trucks. Value of 1 implies that the household has at least one asset in only one of the 3 categories. Value 2 implies that the household has at least one asset in 2 of the 3 categories. Value 3 implies that the household has at least one asset in the 3 categories.

EXPENDITURES:

1. EXPENSES IN CLOTHING AND FOOTWEAR PC [*Computed Variable:* Clothing PC] ➔ Sum of all clothing and footwear expenses in the household (Sum of Question A.13 for all members of the household with a maximum of 13) / Total number of members of the household (Question A.5, with a maximum of 13)
2. TOTAL HOUSEHOLD EXPENSE IN FOOD [*Computed Variable:* TotaHHFoodExpenseYearly] = Annual Cash Expenditure and Market Value of Food Produced and Consumed within the Household as defined on page 35
3. OUTFLOWS OF THE HOUSEHOLD INCLUDE INPUTS/REINVESTMENT FOR NONFARM INCOME ACTIVITIES ➔ Question C11.2
4. OUTFLOWS OF THE HOUSEHOLD INCLUDE BUYING HOUSEHOLD MATERIALS/EQUIPMENT AND DURABLE ASSETS ➔ Question C.7.2

5. MAIN HOUSEHOLD EXPENDITURES INCLUDE FOOD [*Computed Variable:* AccRankFood] ➔ Question 3.1.1 has been ranked as 1,2 or 3

HUMAN ASSETS:

1. NUMBER OF ADULTS [proxy for income earners] [*Computed Variable:* NUMADULTS] ➔ Number of household members who are 19 years old or older.
2. HEALTH: STRATEGIES IN ORDER TO PAY FOR HEALTHCARE ➔ Question G.11
3. EDUCATION: LITERACY OF HEAD OF HOUSEHOLD [*Computed Variable:* HHhLiteracy] ➔ Question A.12, if A.6=head of household

SOCIAL CAPITAL:

1. NUMBER OF GOOD FRIENDS / NEIGHBORS IN COMMUNITY ➔ Question. G.12

VULNERABILITY & FOOD SECURITY:

1. FOOD SECURITY ➔ Question G.2
2. HOUSEHOLD DIET IN THE LAST YEAR ➔ Question G.3
3. SELF-REPORTED LEVEL OF DIFFICULTY IN AFFORDING LARGE EXPENSES - ORDINAL ➔ Question G.9
4. MAIN INCOME GENERATING ACTIVITIES INCLUDE CASUAL LABOR (agricultural and non-agricultural) OR TEMPORARY MIGRATION (domestic or international) [*Computed Variable:* AccRankCasualLabor] ➔ Questions B.4.1.4 or Question B.4.2.4 had a value of 1, 2 or 3 (i.e. the household ranked at least one of them as one of their main income generating activities)
5. SAVINGS AND REINVESTMENT BEHAVIOR ➔ Question D.7.1
6. COPING STRATEGIES INCLUDE REDUCING FOOD CONSUMPTION/EATING WORSE FOODS/ EATING FEWER TIMES A DAY, REDUCING OTHER NON-FOOD EXPENSES (school, clothes, etc) OR SELLING PERSONAL PROPERTY (land, house, cattle, transport, farm or household equipment) [*Computed Variable:* CopingReduceSold] ➔ Household answered G.8.40 and/or G.8.41 and/or G.8.42.

Annex 33: AMK-PCA Significance Tests

T- Test Wellbeing Score - Group Statistics: Clients and Nonclients

	A.1.	N	Mean	Std. Deviation	Std. Error Mean	
HH Wellbeing Score [REGR factor score]	No	90	.2354853	1.12918876	.11902695	
	Yes	360	-.0588713	.95771390	.05047595	

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
HH Wellbeing Score [REGR factor score]	Equal variances assumed	3.910	.049	2.512	448	.012	.29435668	.11716008	.06410510	.52460827
	Equal variances not assumed			2.277	122.904	**.025**	.29435668	.12928742	.03843818	.55027518

T- Test Wellbeing Score - Group Statistics: New clients and Nonclients

	ClientSeniority	N	Mean	Std. Deviation	Std. Error Mean
HH Wellbeing Score [REGR factor score]	New Client (<1 year)	152	-.0632801	1.00570216	.08157322
	NonClient	90	.2354853	1.12918876	.11902695

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
HH Wellbeing Score [REGR factor score]	Equal variances assumed	1.496	.222	-2.133	240	**.034**	-.29876540	.14007787	-.57470446	-.02282634
	Equal variances not assumed			-2.070	170.118	.040	-.29876540	.14429693	-.58360853	-.01392226

Annex 34: Tercile Analysis AMK-PCA Wellbeing Score

POVERTY GROUPS FOR TOTAL SAMPLE – CROSSTABULATION

Crosstab

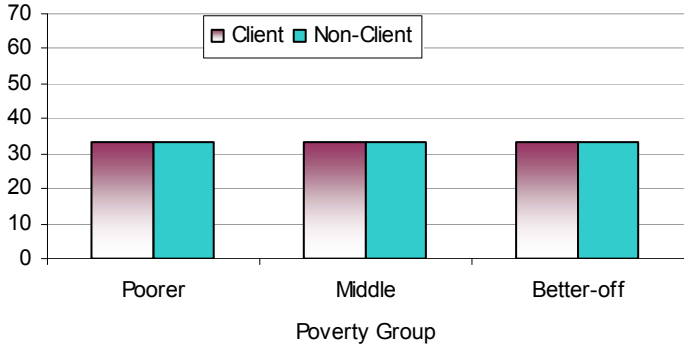
			A.1.		
			No	Yes	Total
WellbeingGROUP3	Poorer	Count	30	162	192
		% within A.1.	33.3%	45.0%	42.7%
	Medium	Count	30	136	166
		% within A.1.	33.3%	37.8%	36.9%
	Better-off	Count	30	62	92
		% within A.1.	33.3%	17.2%	20.4%
Total		Count	90	360	450
		% within A.1.	100.0%	100.0%	100.0%

Chi-Square Tests

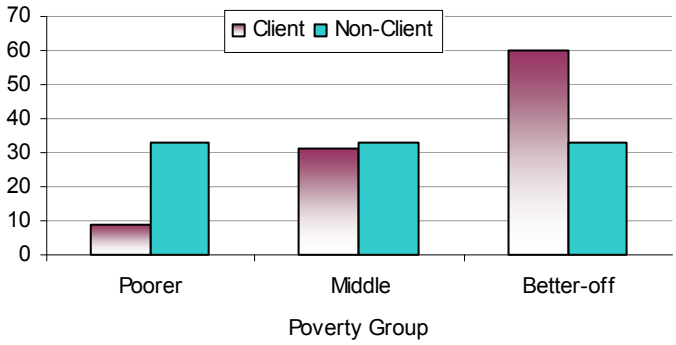
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.824(a)	2	**.003**
Likelihood Ratio	10.898	2	.004
Linear-by-Linear Association	9.529	1	.002
N of Valid Cases	450		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.40.

The graph below shows the case of an MFI with equal poverty outreach (i.e. the pattern of poverty among client households matches exactly that of nonclient households), with client households dividing equally among the three poverty groupings in the same way as the nonclient households: 33 percent into each group.



On the other hand, the graph below shows the opposite pattern, with clients underrepresented in the lowest tercile and overrepresented in the highest tercile, indicating that the MFI is attracting more better-off clients than the general population



Crosstabs for New Client, Beginner, Senior and Nonclient Households

			ClientSeniority				Total
			New Client (<1 year)	Beginner (1-2 years)	Senior (>=2 years)	NonClient	
WellbeingGROUP3	Poorer	Count	70	39	53	30	192
		% within ClientSeniority	46.1%	50.6%	40.5%	33.3%	42.7%
	Medium	Count	53	31	52	30	166
		% within ClientSeniority	34.9%	40.3%	39.7%	33.3%	36.9%
	Better-off	Count	29	7	26	30	92
		% within ClientSeniority	19.1%	9.1%	19.8%	33.3%	20.4%
Total		Count	152	77	131	90	450
		% within ClientSeniority	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.868(a)	6	**.010**
Likelihood Ratio	17.050	6	.009
Linear-by-Linear Association	9.604	1	.002
N of Valid Cases	450		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.74.

Annex 35: Quartile Analysis AMK-PCA Wellbeing Score

The following steps were followed to analyze the quartile results:

- First, the 90 nonclient sample were sorted in ascending order according to their wellbeing scores (i.e. the greater the value of the score, the relatively wealthier the household).
- Second, this sample was divided into quartiles based on the wellbeing scores: the bottom fourth of the nonclient households are grouped into the "poorest" group; followed by the "poor' group; the "middle"-ranked group, and finally, the "better-off" group. Since there are 90 nonclients the poorest and richest group contain 22 households and the poor and medium group contain 23 households. The cutoff scores for each quartile define the limits of each poverty group and they were: -0.647, 0.219 and 0.993
- Third, the 360 client households were then categorized into the same four groups based on their household scores using the cutoff scores defined above for the AMC-PCA case (i.e. -0.65, 0.22 and 0.99).

If the pattern of poverty among client households matches exactly that of nonclient households, client households will divide equally among the three wellbeing groupings in the same way as nonclient households, with 25 percent falling into each group. Any deviation from this equal proportion signals the difference between the client and nonclient populations.

The significance test for these quartiles confirm that the differences for type of client and by seniority group are statistically significant: Type of Client: (Chi-Square (3,N = 450) = 7.89, p = 0.048); Seniority: (Chi-Square (9, N = 450) = 16.60, p= 0.055).

Crosstabulation

			A.1.		
			No	Yes	Total
WellBeingGroup4	Poorest	Count	23	98	121
		% within A.1.	25.6%	27.2%	26.9%
	Poor	Count	22	131	153
		% within A.1.	24.4%	36.4%	34.0%
	Medium	Count	23	79	102
		% within A.1.	25.6%	21.9%	22.7%
	Better-off	Count	22	52	74
		% within A.1.	24.4%	14.4%	16.4%
Total		Count	90	360	450
		% within A.1.	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.888(a)	3	**.048**
Likelihood Ratio	7.705	3	.053
Linear-by-Linear Association	4.285	1	.038
N of Valid Cases	450		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 14.80.

SeniorityCrosstabulation

			ClientSeniority				Total
			New Client (<1 year)	Beginner (1-2 years)	Senior (>=2 years)	NonClient	
WellBeingGroup4	Poorest(4)	Count	42	29	27	23	121
		% within ClientSeniority	27.6%	37.7%	20.6%	25.6%	26.9%
	Poor	Count	53	27	51	22	153
		% within ClientSeniority	34.9%	35.1%	38.9%	24.4%	34.0%
	Medium	Count	33	15	31	23	102
		% within ClientSeniority	21.7%	19.5%	23.7%	25.6%	22.7%
	Better-off	Count	24	6	22	22	74
		% within ClientSeniority	15.8%	7.8%	16.8%	24.4%	16.4%
Total		Count	152	77	131	90	450
		% within ClientSeniority	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.601(a)	9	**.055**
Likelihood Ratio	17.022	9	.048
Linear-by-Linear Association	4.351	1	.037
N of Valid Cases	450		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.66.

Annex 36: Test AMK-PCA: Expenditures in Clothing and Footwear PC

The following pages provide the detailed PCA procedure when applying clothing at footwear as a benchmark, following exactly the same structure as the procedure for the AMK-PCA when applied food security as the benchmark

Step 1: ***Selecting a screened set of indicators that are significantly correlated with the poverty benchmark indicator using linear correlation coefficients***

There were 132 indicators with highest levels of association. Of these 132 indicators, 45 were chosen for step 1 of the process and are ranked in Table 3 below on the basis of their correlation to the poverty benchmark indicator: clothing and footwear per capita.

Table 3: Ranked 45 Indicators by Level of Association with Benchmark "*Clothing and Footwear pc*"

Indicator	Level of Significance	Correlation Coefficient	Number of cases
Expenses in Clothing and Footwear PC - Clothing PC [Sum(**Q.A.13**) - Clothing for each member of the HH]		1	447
HHhClothing	0	.667(**)	447
TotalHHExpenseYearly	0	.430(**)	**446**
WeeklyFoodExpenseHH	0	.403(**)	447
NUMADULTS	0	.327(**)	447
AssetOrdinal	0	.324(**)	447
A.4.1.	0	.307(**)	447
E.3.3.	0	.306(**)	**445**
HHhAge	0	.287(**)	**445**
E.3.2.	0	.257(**)	**446**
E.4.3.	0	.257(**)	447
G.12.	0	.255(**)	**446**
D.6.	0	.254(**)	**445**
E.6.1.	0	.251(**)	447
E.6.3.	0	.249(**)	447
G.2.	0	.246(**)	447
G.3	0	.237(**)	**446**
NUMCSA	0	-.236(**)	447
E.7.	0	.236(**)	**445**
E.3.1.	0	.226(**)	**446**
HHTotalLandAreaHa	0	.221(**)	447
D.2.3.	0	.219(**)	**446**
HHTotalValueLandinRiel	0	.206(**)	**407**
D.7.1.	0	.204(**)	447
F.1.	0	.204(**)	447
B.5.1.4.1.	0	-.201(**)	447
G.9.	0	.198(**)	447
E.5.6.	0	.185(**)	447
AccRankServices	0	.178(**)	447
E.3.4.3.	0	.173(**)	**446**
Rank1Ceremonies	0	.168(**)	447
B.1.3.1.	0	.166(**)	447

Indicator	Level of Significance	Correlation Coefficient	Number of cases
E.5.1.	0.001	.162(**)	447
AccRankCasualLabor	0.001	-.161(**)	447
Rank1Food	0.001	-.150(**)	447
G.5.	0.002	-.147(**)	447
C.11.2.	0.002	.144(**)	447
AccRankBuyGold	0.002	.143(**)	447
4.a.	0.003	-.139(**)	447
AccRankCPR	0.004	-.138(**)	447
CopingSavings	0.005	.133(**)	447
AccRankSalariedLabor	0.006	.129(**)	447
G.6.12.	0.007	.127(**)	447
NUMCHILDREN	0.008	-.126(**)	447
D.2.1.	0.009	.123(**)	447
E.1.	0.010	.122(**)	**445**

The full correlation matrices, the summary of the 132 indicators with the highest levels of association and the reduction from 132 indicators to 45 variables for stage 1 of AMK-PCA: Clothing and Footwear can be found below.

		Clothing PC				Clothing PC
ClothingPC	Pearson Correlation	1		C.5.1.	Pearson Correlation	0.074
	Sig. (2-tailed)	.			Sig. (2-tailed)	0.308
	N	447			N	191
4.a.	Pearson Correlation	-.139(**)		C.5.2.	Pearson Correlation	0.028
	Sig. (2-tailed)	0.003			Sig. (2-tailed)	0.551
	N	447			N	447
A.1.	Pearson Correlation	-.149(**)		C.6.1.	Pearson Correlation	-0.121
	Sig. (2-tailed)	0.002			Sig. (2-tailed)	0.254
	N	447			N	90
A.3	Pearson Correlation	-0.004		C.6.2.	Pearson Correlation	0.048
	Sig. (2-tailed)	0.937			Sig. (2-tailed)	0.31
	N	358			N	447
ClientSeniority	Pearson Correlation	-0.01		C.7.1.	Pearson Correlation	-0.107
	Sig. (2-tailed)	0.848			Sig. (2-tailed)	0.235
	N	358			N	126
A.4.1.	Pearson Correlation	.307(**)		C.7.2.	Pearson Correlation	0.033
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.484
	N	447			N	447
A.5.1.	Pearson Correlation	0.086		C.8.1.	Pearson Correlation	0.151
	Sig. (2-tailed)	0.069			Sig. (2-tailed)	0.275
	N	447			N	54
NUMADULTS	Pearson Correlation	.327(**)		C.8.2.	Pearson Correlation	-0.052
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.269
	N	447			N	447
NUMCSA	Pearson Correlation	-.236(**)		C.9.1.	Pearson Correlation	-.316(**)
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.002
	N	447			N	94
NUMCBSA	Pearson Correlation	-0.016		C.9.2.	Pearson Correlation	-0.006
	Sig. (2-tailed)	0.731			Sig. (2-tailed)	0.9
	N	447			N	447
NUMCHILDREN	Pearson Correlation	-.126(**)		C.10.1.	Pearson Correlation	-0.048
	Sig. (2-tailed)	0.008			Sig. (2-tailed)	0.718
	N	447			N	59
A.8.1.	Pearson Correlation	.274(**)		C.10.2.	Pearson Correlation	0.022
	Sig. (2-tailed)	0			Sig. (2-tailed)	0.642
	N	445			N	447
A.10.1.	Pearson Correlation	0.032		C.11.1.	Pearson Correlation	-0.023
	Sig. (2-tailed)	0.502			Sig. (2-tailed)	0.821

		Clothing PC				Clothing PC
	N	446		C.11.2.	Pearson Correlation	.144(**)
A.12.1.	Pearson Correlation	.102(*)			Sig. (2-tailed)	0.002
	Sig. (2-tailed)	0.031			N	447
	N	445		C.12.1.	Pearson Correlation	-0.162
A.13.1.	Pearson Correlation	.661(**)			Sig. (2-tailed)	0.677
	Sig. (2-tailed)	0			N	9
	N	447		C.12.2.	Pearson Correlation	.110(*)
A.8.2.	Pearson Correlation	.213(**)			Sig. (2-tailed)	0.02
	Sig. (2-tailed)	0			N	447
	N	438		C.13.1.	Pearson Correlation	0.397
A.10.2.	Pearson Correlation	-0.008			Sig. (2-tailed)	0.603
	Sig. (2-tailed)	0.874			N	4
	N	431		C.13.2.	Pearson Correlation	0.023
A.11.2.	Pearson Correlation	-0.165			Sig. (2-tailed)	0.622
	Sig. (2-tailed)	0.528			N	447
	N	17		AccRankFood	Pearson Correlation	-0.092
A.12.2.	Pearson Correlation	0.02			Sig. (2-tailed)	0.053
	Sig. (2-tailed)	0.676			N	447
	N	435		Rank1Food	Pearson Correlation	-.150(**)
A.13.2.	Pearson Correlation	.779(**)			Sig. (2-tailed)	0.001
	Sig. (2-tailed)	0			N	447
	N	440		AccRankClothing	Pearson Correlation	.118(*)
PercentageChildrenLESSThan6OverChildren	Pearson Correlation	.216(**)			Sig. (2-tailed)	0.012
	Sig. (2-tailed)	0			N	447
	N	409		Rank1Clothing	Pearson Correlation	.(a)
PercentageChildrenLESSThan6OverTotalHH	Pearson Correlation	-0.043			Sig. (2-tailed)	.
	Sig. (2-tailed)	0.36			N	447
	N	447		AccRankSchooling	Pearson Correlation	0.085
PercentageIncomeEarnerOverTotalHH	Pearson Correlation	.265(**)			Sig. (2-tailed)	0.073
	Sig. (2-tailed)	0			N	447
	N	447		Rank1Schooling	Pearson Correlation	0.06
PercentageCASOverChildren	Pearson Correlation	-.216(**)			Sig. (2-tailed)	0.205
	Sig. (2-tailed)	0			N	447
	N	409		AccRankHeatlh	Pearson Correlation	-.095(*)
AMKClient#HHmember	Pearson Correlation	0.048			Sig. (2-tailed)	0.044
	Sig. (2-tailed)	0.362			N	447
	N	359		Rank1Heatlh	Pearson Correlation	0.001
AMKClientAge	Pearson Correlation	.261(**)			Sig. (2-tailed)	0.984
	Sig. (2-tailed)	0			N	447
	N	358		AccRankInputCrops	Pearson Correlation	-0.071
AMKClientLiteracy	Pearson Correlation	-0.077			Sig. (2-tailed)	0.136
	Sig. (2-tailed)	0.144			N	447
	N	359		Rank1InputCrops	Pearson Correlation	-0.001
AMKClientHighEduc	Pearson Correlation	-0.036			Sig. (2-tailed)	0.981
	Sig. (2-tailed)	0.493			N	447
	N	357		AccRankInputLivestockCPR	Pearson Correlation	-0.004
AMKClientclothing	Pearson Correlation	.721(**)			Sig. (2-tailed)	0.936
	Sig. (2-tailed)	0			N	447
	N	359		Rank1InputLivestockCPR	Pearson Correlation	0.074
HHh#HHmember	Pearson Correlation	-0.035			Sig. (2-tailed)	0.118
	Sig. (2-tailed)	0.463			N	447
	N	447		AccRankInputNonFarm	Pearson Correlation	-0.003
HHhAge	Pearson Correlation	.287(**)			Sig. (2-tailed)	0.956
	Sig. (2-tailed)	0			N	447
	N	445		Rank1InputNonFarm	Pearson Correlation	0.01
HHhLiteracy	Pearson Correlation	0.045			Sig. (2-tailed)	0.84
	Sig. (2-tailed)	0.344			N	447
	N	446		AcdRankServiceLoans	Pearson Correlation	-0.028
HHhHighEduc	Pearson Correlation	.095(*)			Sig. (2-tailed)	0.562
	Sig. (2-tailed)	0.046			N	447

		Clothing PC				Clothing PC
	N	445		AccRankServiceLoans	Pearson Correlation	-0.028
HHhClothing	Pearson Correlation	.667(**)			Sig. (2-tailed)	0.562
	Sig. (2-tailed)	0			N	447
	N	447		Rank1ServiceLoans	Pearson Correlation	-0.033
HHhAMKClient	Pearson Correlation	-0.028			Sig. (2-tailed)	0.488
	Sig. (2-tailed)	0.553			N	447
	N	447		AccRankCeremonies	Pearson Correlation	0.013
B.1.1.1.	Pearson Correlation	-0.043			Sig. (2-tailed)	0.786
	Sig. (2-tailed)	0.37			N	447
	N	447		Rank1Ceremonies	Pearson Correlation	.168(**)
B.1.1.3.	Pearson Correlation	-0.059			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.21			N	447
	N	447		AccRankBuyLand	Pearson Correlation	-0.028
B.1.1.4.	Pearson Correlation	-0.035			Sig. (2-tailed)	0.554
	Sig. (2-tailed)	0.633			N	447
	N	186		Rank1BuyLand	Pearson Correlation	-0.002
B.1.2.1.	Pearson Correlation	-0.091			Sig. (2-tailed)	0.962
	Sig. (2-tailed)	0.054			N	447
	N	447		AccRankBuyOAssets	Pearson Correlation	.111(*)
B.1.2.3.	Pearson Correlation	-0.001			Sig. (2-tailed)	0.019
	Sig. (2-tailed)	0.989			N	447
	N	447		Rank1BuyOAssets	Pearson Correlation	0.086
B.1.2.4.	Pearson Correlation	-0.283			Sig. (2-tailed)	0.07
	Sig. (2-tailed)	0.129			N	447
	N	30		AccRankBuyGold	Pearson Correlation	.143(**)
B.1.3.1.	Pearson Correlation	.166(**)			Sig. (2-tailed)	0.002
	Sig. (2-tailed)	0			N	447
	N	447		Rank1BuyGold	Pearson Correlation	0.052
B.1.3.3.	Pearson Correlation	.118(*)			Sig. (2-tailed)	0.269
	Sig. (2-tailed)	0.013			N	447
	N	447		AccRankOthers	Pearson Correlation	0.041
B.1.3.4.	Pearson Correlation	-0.218			Sig. (2-tailed)	0.384
	Sig. (2-tailed)	0.639			N	447
	N	7		Rank1Others	Pearson Correlation	0.012
B.2.1.1.	Pearson Correlation	0.086			Sig. (2-tailed)	0.805
	Sig. (2-tailed)	0.068			N	447
	N	447		AccRankBasics	Pearson Correlation	-0.075
B.2.1.3.	Pearson Correlation	.114(*)			Sig. (2-tailed)	0.113
	Sig. (2-tailed)	0.016			N	447
	N	447		AccRankFarmInvestmetns	Pearson Correlation	-0.044
B.2.1.4.	Pearson Correlation	-0.012			Sig. (2-tailed)	0.35
	Sig. (2-tailed)	0.884			N	447
	N	152		AccRankAssetBuilding	Pearson Correlation	0.079
B.2.2.1.	Pearson Correlation	-0.088			Sig. (2-tailed)	0.095
	Sig. (2-tailed)	0.062			N	447
	N	447		Rank1Basics	Pearson Correlation	-.140(**)
B.2.2.3.	Pearson Correlation	-0.044			Sig. (2-tailed)	0.003
	Sig. (2-tailed)	0.352			N	447
	N	447		Rank1FarmInvestment	Pearson Correlation	0.043
B.2.2.4.	Pearson Correlation	0.027			Sig. (2-tailed)	0.359
	Sig. (2-tailed)	0.846			N	447
	N	53		Rank1AssetBuilding	Pearson Correlation	0.068
B.2.3.1.	Pearson Correlation	-.103(*)			Sig. (2-tailed)	0.151
	Sig. (2-tailed)	0.029			N	447
	N	447		D.1.1.	Pearson Correlation	.398(**)
B.2.3.3.	Pearson Correlation	0.061			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.198			N	447
	N	447		D.1.2.	Pearson Correlation	0.044
B.2.3.4.	Pearson Correlation	.236(*)			Sig. (2-tailed)	0.359
	Sig. (2-tailed)	0.039			N	447
	N	77		D.1.3.	Pearson Correlation	.402(**)
B.3.1.1.	Pearson Correlation	-.215(**)			Sig. (2-tailed)	0
	Sig. (2-tailed)	0			N	447
	N	447		D.2.1.	Pearson Correlation	.123(**)
B.3.1.3.	Pearson Correlation	-0.044			Sig. (2-tailed)	0.009

		Clothing PC				Clothing PC
	Sig. (2-tailed)	0.358			N	447
	N	447		D.2.2.	Pearson Correlation	.099(*)
B.3.1.4.	Pearson Correlation	0.26			Sig. (2-tailed)	0.037
	Sig. (2-tailed)	0.138			N	447
	N	34		D.2.3.	Pearson Correlation	.219(**)
B.3.2.1.	Pearson Correlation	-.141(**)			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.003			N	446
	N	447		D.3.	Pearson Correlation	-0.014
B.3.2.3.	Pearson Correlation	-0.08			Sig. (2-tailed)	0.772
	Sig. (2-tailed)	0.089			N	447
	N	447		D.4.	Pearson Correlation	0.107
B.3.2.4.	Pearson Correlation	0.527			Sig. (2-tailed)	0.061
	Sig. (2-tailed)	0.362			N	307
	N	5		D.5.	Pearson Correlation	0.063
B.3.3.1.	Pearson Correlation	-.152(**)			Sig. (2-tailed)	0.242
	Sig. (2-tailed)	0.001			N	345
	N	447		D.6.	Pearson Correlation	.254(**)
B.3.3.3.	Pearson Correlation	-.109(*)			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.021			N	445
	N	447		D.7.1.	Pearson Correlation	.204(**)
B.3.3.4.	Pearson Correlation	-0.169			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.296			N	447
	N	40		D.7.1.1.	Pearson Correlation	.119(*)
B.4.1.1.	Pearson Correlation	-.175(**)			Sig. (2-tailed)	0.012
	Sig. (2-tailed)	0			N	447
	N	447		D.7.1.2.	Pearson Correlation	.113(*)
B.4.1.3.	Pearson Correlation	-.176(**)			Sig. (2-tailed)	0.017
	Sig. (2-tailed)	0			N	447
	N	447		D.7.1.3.	Pearson Correlation	0.034
B.4.1.4.	Pearson Correlation	0.103			Sig. (2-tailed)	0.479
	Sig. (2-tailed)	0.18			N	447
	N	170		D.7.1.4.	Pearson Correlation	.181(**)
B.4.2.1.	Pearson Correlation	0.047			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.32			N	447
	N	447		D.7.1.5.	Pearson Correlation	-0.001
B.4.2.3.	Pearson Correlation	0.053			Sig. (2-tailed)	0.984
	Sig. (2-tailed)	0.264			N	447
	N	447		D.7.1.6.	Pearson Correlation	.(a)
B.4.2.4.	Pearson Correlation	-0.123			Sig. (2-tailed)	.
	Sig. (2-tailed)	0.264			N	447
	N	84		D.7.1.7.0.	Pearson Correlation	.(a)
B.4.3.1.	Pearson Correlation	.132(**)			Sig. (2-tailed)	.
	Sig. (2-tailed)	0.005			N	447
	N	447		WeeklyFoodExxpenseHH	Pearson Correlation	.403(**)
B.4.3.3.	Pearson Correlation	.132(**)			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.005			N	447
	N	447		OtherFoodProducYear0or1	Pearson Correlation	.095(*)
B.4.3.4.	Pearson Correlation	0.063			Sig. (2-tailed)	0.044
	Sig. (2-tailed)	0.771			N	447
	N	24		OtherFoodGathered0or1	Pearson Correlation	-0.023
B.4.4.1.	Pearson Correlation	.133(**)			Sig. (2-tailed)	0.632
	Sig. (2-tailed)	0.005			N	447
	N	447		TotalHHExpenseYearly	Pearson Correlation	.430(**)
B.4.4.3.	Pearson Correlation	.133(**)			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.005			N	446
	N	447		TotalYearlyExpensePC	Pearson Correlation	.341(**)
B.4.4.4.	Pearson Correlation	0.156			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.225			N	446
	N	62		ClothingPCOverExpensePC	Pearson Correlation	.564(**)
B.5.1.0.1.	Pearson Correlation	-0.057			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.23			N	446
	N	447		DailyPCExpense	Pearson Correlation	.341(**)
B.5.1.0.3.	Pearson Correlation	-0.057			Sig. (2-tailed)	0

		Clothing PC				Clothing PC
	Sig. (2-tailed)	0.228			N	446
	N	447		E.1.	Pearson Correlation	.122(**)
B.5.1.0.4.	Pearson Correlation	0.059			Sig. (2-tailed)	0.01
	Sig. (2-tailed)	0.655			N	445
	N	59		HHTotalLandAreaHa	Pearson Correlation	.221(**)
B.5.1.1.1.	Pearson Correlation	0.002			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.963			N	447
	N	447		HHTotalValueLandinRiel	Pearson Correlation	.206(**)
B.5.1.1.3.	Pearson Correlation	0.002			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.963			N	407
	N	447		E.2.1.	Pearson Correlation	-0.009
B.5.1.1.4.	Pearson Correlation	0.217			Sig. (2-tailed)	0.848
	Sig. (2-tailed)	0.476			N	437
	N	13		E.2.2.	Pearson Correlation	.096(*)
B.5.1.2.1.	Pearson Correlation	0.077			Sig. (2-tailed)	0.046
	Sig. (2-tailed)	0.104			N	431
	N	447		E.2.3.	Pearson Correlation	.123(*)
B.5.1.2.3.	Pearson Correlation	0.077			Sig. (2-tailed)	0.011
	Sig. (2-tailed)	0.104			N	433
	N	447		E.2.4.	Pearson Correlation	0.017
B.5.1.2.4.	Pearson Correlation	0.506			Sig. (2-tailed)	0.718
	Sig. (2-tailed)	0.494			N	440
	N	4		E.3.1.	Pearson Correlation	.226(**)
B.5.1.3.1.	Pearson Correlation	0.031			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.512			N	446
	N	447		E.3.2.	Pearson Correlation	.257(**)
B.5.1.3.3.	Pearson Correlation	0.038			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.425			N	446
	N	447		E.3.3.	Pearson Correlation	.306(**)
B.5.1.3.4.	Pearson Correlation	-0.043			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.848			N	445
	N	22		E.3.4.1.	Pearson Correlation	.175(**)
B.5.1.4.1.	Pearson Correlation	-.201(**)			Sig. (2-tailed)	0
	Sig. (2-tailed)	0			N	446
	N	447		E.3.4.2.	Pearson Correlation	.206(**)
B.5.1.4.3.	Pearson Correlation	-.125(**)			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.008			N	446
	N	447		E.3.4.3.	Pearson Correlation	.173(**)
B.5.1.4.4.	Pearson Correlation	-0.269			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.314			N	446
	N	16		FloorMud	Pearson Correlation	-0.043
B.5.1.5.1.	Pearson Correlation	-0.019			Sig. (2-tailed)	0.36
	Sig. (2-tailed)	0.696			N	447
	N	447		FloorMedium	Pearson Correlation	-0.079
B.5.1.5.3.	Pearson Correlation	-0.019			Sig. (2-tailed)	0.096
	Sig. (2-tailed)	0.696			N	447
	N	447		FloorExpensive	Pearson Correlation	.260(**)
B.5.1.5.4.	Pearson Correlation	0.076			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.773			N	447
	N	17		RoofThatch	Pearson Correlation	-.258(**)
B.6.1.0.1.	Pearson Correlation	0.09			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.057			N	447
	N	447		RoofMedium	Pearson Correlation	.157(**)
B.6.1.0.3.	Pearson Correlation	0.09			Sig. (2-tailed)	0.001
	Sig. (2-tailed)	0.057			N	447
	N	447		RoofExpensive	Pearson Correlation	.136(**)
B.6.1.0.4.	Pearson Correlation	-0.011			Sig. (2-tailed)	0.004
	Sig. (2-tailed)	0.945			N	447
	N	39		WallThatch	Pearson Correlation	-.221(**)
B.6.1.1.1.	Pearson Correlation	.097(*)			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.04			N	447
	N	447		WallMedium	Pearson Correlation	0.018
B.6.1.1.3.	Pearson Correlation	0.089			Sig. (2-tailed)	0.704
	Sig. (2-tailed)	0.059			N	447
	N	447		WallExpensive	Pearson Correlation	.295(**)

		Clothing PC				Clothing PC
B.6.1.1.4.	Pearson Correlation	-0.205			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.447			N	447
	N	16		E.7.	Pearson Correlation	.236(**)
B.6.1.2.1.	Pearson Correlation	.120(*)			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.011			N	445
	N	447		E.4.1.	Pearson Correlation	.141(**)
B.6.1.2.3.	Pearson Correlation	.120(*)			Sig. (2-tailed)	0.003
	Sig. (2-tailed)	0.011			N	447
	N	447		E.4.2.	Pearson Correlation	-.163(**)
B.6.1.2.4.	Pearson Correlation	0.013			Sig. (2-tailed)	0.001
	Sig. (2-tailed)	0.942			N	447
	N	34		E.4.3.	Pearson Correlation	.257(**)
B.6.1.3.1.	Pearson Correlation	0.058			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.222			N	447
	N	447		E.4.4.	Pearson Correlation	.187(**)
B.6.1.3.3.	Pearson Correlation	0.058			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.222			N	447
	N	447		E.4.5.	Pearson Correlation	-0.08
B.6.1.3.4.	Pearson Correlation	1.000(**)			Sig. (2-tailed)	0.093
	Sig. (2-tailed)	.			N	447
	N	2		E.4.6.	Pearson Correlation	0.037
B.6.1.4.1.	Pearson Correlation	0.014			Sig. (2-tailed)	0.44
	Sig. (2-tailed)	0.768			N	447
	N	447		E.4.7.0.	Pearson Correlation	.102(*)
B.6.1.4.3.	Pearson Correlation	0.014			Sig. (2-tailed)	0.031
	Sig. (2-tailed)	0.768			N	447
	N	447		E.5.1.	Pearson Correlation	.162(**)
B.6.1.4.4.	Pearson Correlation	0.129			Sig. (2-tailed)	0.001
	Sig. (2-tailed)	0.836			N	447
	N	5		E.5.2.	Pearson Correlation	-0.044
B.6.1.5.1.	Pearson Correlation	.155(**)			Sig. (2-tailed)	0.348
	Sig. (2-tailed)	0.001			N	447
	N	447		E.5.3.	Pearson Correlation	.159(**)
B.6.1.5.3.	Pearson Correlation	.155(**)			Sig. (2-tailed)	0.001
	Sig. (2-tailed)	0.001			N	447
	N	447		E.5.4.	Pearson Correlation	0.088
B.6.1.5.4.	Pearson Correlation	0.06			Sig. (2-tailed)	0.063
	Sig. (2-tailed)	0.745			N	447
	N	32		E.5.5.	Pearson Correlation	0.081
B.7.1.1.	Pearson Correlation	0.004			Sig. (2-tailed)	0.087
	Sig. (2-tailed)	0.936			N	447
	N	447		E.5.6.	Pearson Correlation	.185(**)
B.7.1.3.	Pearson Correlation	0.004			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.936			N	447
	N	447		E.5.7.0.	Pearson Correlation	0.004
B.7.1.4.	Pearson Correlation	0.024			Sig. (2-tailed)	0.928
	Sig. (2-tailed)	0.935			N	447
	N	14		E.6.1.	Pearson Correlation	.251(**)
B.8.1.0.1.	Pearson Correlation	0.046			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.335			N	447
	N	447		E.6.2.	Pearson Correlation	0.092
B.8.1.0.3.	Pearson Correlation	0.038			Sig. (2-tailed)	0.051
	Sig. (2-tailed)	0.418			N	447
	N	447		E.6.3.	Pearson Correlation	.249(**)
B.8.1.0.4.	Pearson Correlation	0.274			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.475			N	447
	N	9		E.6.4.	Pearson Correlation	0.054
B.8.1.1.1.	Pearson Correlation	0.047			Sig. (2-tailed)	0.252
	Sig. (2-tailed)	0.325			N	447
	N	447		E.6.5.	Pearson Correlation	-0.008
B.8.1.1.3.	Pearson Correlation	0.047			Sig. (2-tailed)	0.862
	Sig. (2-tailed)	0.325			N	447
	N	447		E.6.6.0.	Pearson Correlation	0.089
B.8.1.1.4.	Pearson Correlation	-0.225			Sig. (2-tailed)	0.061
	Sig. (2-tailed)	0.341			N	447

		Clothing PC				Clothing PC
	N	20		E.6.7.0.	Pearson Correlation	.(a)
B.8.1.2.1.	Pearson Correlation	0.052			Sig. (2-tailed)	.
	Sig. (2-tailed)	0.275			N	447
	N	447		AssetsModestValue	Pearson Correlation	.116(*)
B.8.1.2.3.	Pearson Correlation	0.053			Sig. (2-tailed)	0.014
	Sig. (2-tailed)	0.263			N	447
	N	447		AssetsMidRangetValue	Pearson Correlation	.240(**)
B.8.1.2.4.	Pearson Correlation	-0.285			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.396			N	447
	N	11		AssetsHighRangetValue	Pearson Correlation	.281(**)
B.8.1.3.1.	Pearson Correlation	-0.074			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.117			N	447
	N	447		AssetOrdinal	Pearson Correlation	.324(**)
B.8.1.3.3.	Pearson Correlation	-0.064			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.175			N	447
	N	447		F.1.	Pearson Correlation	.204(**)
B.8.1.3.4.	Pearson Correlation	0.323			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.397			N	447
	N	9		F.2.	Pearson Correlation	0.006
B.8.1.4.1.	Pearson Correlation	-0.01			Sig. (2-tailed)	0.895
	Sig. (2-tailed)	0.838			N	444
	N	447		F.3.	Pearson Correlation	.204(**)
B.8.1.4.3.	Pearson Correlation	-0.004			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.94			N	447
	N	447		F.4.	Pearson Correlation	0.05
B.8.1.4.4.	Pearson Correlation	-0.082			Sig. (2-tailed)	0.291
	Sig. (2-tailed)	0.49			N	447
	N	73		G.1.	Pearson Correlation	0.082
B.8.1.5.1.	Pearson Correlation	.121(*)			Sig. (2-tailed)	0.083
	Sig. (2-tailed)	0.01			N	447
	N	447		G.1.1.1.	Pearson Correlation	0.012
B.8.1.5.3.	Pearson Correlation	.121(*)			Sig. (2-tailed)	0.797
	Sig. (2-tailed)	0.01			N	447
	N	447		G.1.1.2.	Pearson Correlation	-0.047
B.8.1.5.4.	Pearson Correlation	0.342			Sig. (2-tailed)	0.325
	Sig. (2-tailed)	0.507			N	447
	N	6		G.1.1.3.	Pearson Correlation	-0.047
B.8.1.6.1.	Pearson Correlation	0.071			Sig. (2-tailed)	0.318
	Sig. (2-tailed)	0.136			N	447
	N	447		G.1.1.4.	Pearson Correlation	0.064
B.8.1.6.3.	Pearson Correlation	0.071			Sig. (2-tailed)	0.176
	Sig. (2-tailed)	0.136			N	447
	N	447		G.1.1.5.	Pearson Correlation	-0.021
B.8.1.6.4.	Pearson Correlation	.(a)			Sig. (2-tailed)	0.653
	Sig. (2-tailed)	.			N	447
	N	1		G.1.1.6.	Pearson Correlation	-0.04
FarmCropsCash0or1	Pearson Correlation	-0.008			Sig. (2-tailed)	0.395
	Sig. (2-tailed)	0.873			N	447
	N	447		G.1.1.7.	Pearson Correlation	-0.005
FarmLivestockCash0or1	Pearson Correlation	0.091			Sig. (2-tailed)	0.914
	Sig. (2-tailed)	0.055			N	447
	N	447		G.1.1.8.0.	Pearson Correlation	0.067
FarmCPRCash0or1	Pearson Correlation	-.126(**)			Sig. (2-tailed)	0.157
	Sig. (2-tailed)	0.008			N	447
	N	447		G.2.	Pearson Correlation	.246(**)
NonFarmCasualLaborCash0or1	Pearson Correlation	-.126(**)			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.007			N	447
	N	447		G.3	Pearson Correlation	.237(**)
NonFarmSalariedLaborCash0or1	Pearson Correlation	.129(**)			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.006			N	446
	N	447		G.4.	Pearson Correlation	-.115(*)
NonFarmManufacturin	Pearson Correlation	-0.058			Sig. (2-tailed)	0.015

		Clothing PC				Clothing PC
gCash0or1						
	Sig. (2-tailed)	0.224			N	447
	N	447		G.5.	Pearson Correlation	-.147(**)
NonFarmServicesCash0or1	Pearson Correlation	.177(**)			Sig. (2-tailed)	0.002
	Sig. (2-tailed)	0			N	447
	N	447		G.6.10.0.	Pearson Correlation	0.024
NonRemittancesCash0or1	Pearson Correlation	0.004			Sig. (2-tailed)	0.619
	Sig. (2-tailed)	0.936			N	447
	N	447		G.6.10.1.	Pearson Correlation	.(a)
NonRentSaleOtherCash0or1	Pearson Correlation	0.079			Sig. (2-tailed)	.
	Sig. (2-tailed)	0.095			N	7
	N	447		G.6.11.	Pearson Correlation	.100(*)
NonRentUsedCash0or1	Pearson Correlation	-0.064			Sig. (2-tailed)	0.034
	Sig. (2-tailed)	0.175			N	447
	N	447		G.6.12.	Pearson Correlation	.127(**)
NonLoansReceivedCash0or1	Pearson Correlation	-0.004			Sig. (2-tailed)	0.007
	Sig. (2-tailed)	0.94			N	447
	N	447		G.6.13.	Pearson Correlation	-0.066
NonLoansGivenCash0or1	Pearson Correlation	.121(*)			Sig. (2-tailed)	0.161
	Sig. (2-tailed)	0.01			N	447
	N	447		G.6.14.	Pearson Correlation	-0.012
FarmCash0or1	Pearson Correlation	.101(*)			Sig. (2-tailed)	0.792
	Sig. (2-tailed)	0.032			N	447
	N	447		G.6.20.	Pearson Correlation	0.006
NonFarmCash0or1	Pearson Correlation	.098(*)			Sig. (2-tailed)	0.899
	Sig. (2-tailed)	0.038			N	447
	N	447		G.6.21.	Pearson Correlation	-0.016
OtherInflowCash0or1	Pearson Correlation	0.013			Sig. (2-tailed)	0.741
	Sig. (2-tailed)	0.79			N	447
	N	447		G.6.22.	Pearson Correlation	-0.064
AccRankCrops	Pearson Correlation	-0.031			Sig. (2-tailed)	0.174
	Sig. (2-tailed)	0.508			N	447
	N	447		G.6.30.	Pearson Correlation	-0.066
Rank1Crops	Pearson Correlation	0			Sig. (2-tailed)	0.162
	Sig. (2-tailed)	0.996			N	447
	N	447		G.6.31.	Pearson Correlation	.(a)
AccRankLivestock	Pearson Correlation	-0.001			Sig. (2-tailed)	.
	Sig. (2-tailed)	0.991			N	447
	N	447		G.6.32.	Pearson Correlation	.(a)
Rank1Livestock	Pearson Correlation	-0.028			Sig. (2-tailed)	.
	Sig. (2-tailed)	0.556			N	447
	N	447		G.7.	Pearson Correlation	-0.043
AccRankCPR	Pearson Correlation	-.138(**)			Sig. (2-tailed)	0.364
	Sig. (2-tailed)	0.004			N	447
	N	447		G.8.10.	Pearson Correlation	.133(**)
Rank1CPR	Pearson Correlation	-.130(**)			Sig. (2-tailed)	0.005
	Sig. (2-tailed)	0.006			N	447
	N	447		G.8.20.	Pearson Correlation	0.06
AccRankCasualLabor	Pearson Correlation	-.161(**)			Sig. (2-tailed)	0.207
	Sig. (2-tailed)	0.001			N	447
	N	447		G.8.21.	Pearson Correlation	-0.058
Rank1CasualLabor	Pearson Correlation	-0.056			Sig. (2-tailed)	0.218
	Sig. (2-tailed)	0.237			N	447
	N	447		G.8.30.	Pearson Correlation	-0.062
AccRankSalariedLabor	Pearson Correlation	.129(**)			Sig. (2-tailed)	0.193
	Sig. (2-tailed)	0.006			N	447
	N	447		G.8.31.	Pearson Correlation	0.053
Rank1SalariedLabor	Pearson Correlation	0.078			Sig. (2-tailed)	0.267
	Sig. (2-tailed)	0.101			N	447
	N	447		G.8.32.	Pearson Correlation	0.006

		Clothing PC				Clothing PC
AccRankServices	Pearson Correlation	.178(**)			Sig. (2-tailed)	0.905
	Sig. (2-tailed)	0			N	447
	N	447		G.8.33.	Pearson Correlation	0.028
Rank1Services	Pearson Correlation	.151(**)			Sig. (2-tailed)	0.553
	Sig. (2-tailed)	0.001			N	447
	N	447		G.8.40.	Pearson Correlation	-.099(*)
Rank1Manufacture	Pearson Correlation	-0.045			Sig. (2-tailed)	0.037
	Sig. (2-tailed)	0.345			N	447
	N	447		G.8.41.	Pearson Correlation	-0.081
AccRankManufacture	Pearson Correlation	-0.045			Sig. (2-tailed)	0.089
	Sig. (2-tailed)	0.34			N	447
	N	447		G.8.42.	Pearson Correlation	0.065
AccRankRemittances	Pearson Correlation	0			Sig. (2-tailed)	0.171
	Sig. (2-tailed)	0.995			N	447
	N	447		G.8.50.0.	Pearson Correlation	-0.055
Rank1Remittances	Pearson Correlation	-0.015			Sig. (2-tailed)	0.246
	Sig. (2-tailed)	0.753			N	447
	N	447		G.9.	Pearson Correlation	.198(**)
AccRankRentSaleOther	Pearson Correlation	0.014			Sig. (2-tailed)	0
	Sig. (2-tailed)	0.769			N	447
	N	447		G.10.	Pearson Correlation	-0.033
Rank1RentSaleOther	Pearson Correlation	0.006			Sig. (2-tailed)	0.487
	Sig. (2-tailed)	0.903			N	447
	N	447		G.11.	Pearson Correlation	-0.084
AccRankRentalUsed	Pearson Correlation	-0.079			Sig. (2-tailed)	0.076
	Sig. (2-tailed)	0.097			N	446
	N	447		G.12.	Pearson Correlation	.255(**)
Rank1RentalUsed	Pearson Correlation	.(a)			Sig. (2-tailed)	0
	Sig. (2-tailed)	.			N	446
	N	447		G.13.	Pearson Correlation	0.085
AccRankLoansReceived	Pearson Correlation	-0.026			Sig. (2-tailed)	0.071
	Sig. (2-tailed)	0.588			N	447
	N	447		CrisisEventsHH	Pearson Correlation	0.084
Rank1LoansReceived	Pearson Correlation	0.053			Sig. (2-tailed)	0.077
	Sig. (2-tailed)	0.264			N	447
	N	447		CrisisEventsEA	Pearson Correlation	-0.033
AccRankLoansGiven	Pearson Correlation	.131(**)			Sig. (2-tailed)	0.49
	Sig. (2-tailed)	0.005			N	447
	N	447		CrisisEventsExternal	Pearson Correlation	-0.066
Rank1LoansGiven	Pearson Correlation	0.065			Sig. (2-tailed)	0.162
	Sig. (2-tailed)	0.17			N	447
	N	447		CopingSavings	Pearson Correlation	.133(**)
C.2.1.	Pearson Correlation	0.01			Sig. (2-tailed)	0.005
	Sig. (2-tailed)	0.961			N	447
	N	28		CopingBorrowing	Pearson Correlation	-0.014
C.2.2.	Pearson Correlation	.139(**)			Sig. (2-tailed)	0.774
	Sig. (2-tailed)	0.003			N	447
	N	447		CopingEA	Pearson Correlation	0
C.3.1.	Pearson Correlation	-0.276			Sig. (2-tailed)	0.994
	Sig. (2-tailed)	0.173			N	447
	N	26		CopingReduceSold	Pearson Correlation	-0.049
C.3.2.	Pearson Correlation	0.038			Sig. (2-tailed)	0.298
	Sig. (2-tailed)	0.42			N	447
	N	447		CopingOther	Pearson Correlation	-0.055
C.4.1.	Pearson Correlation	-0.155				
	Sig. (2-tailed)	0.068				
	N	139				
C.4.2.	Pearson Correlation	-0.018				
	Sig. (2-tailed)	0.701				
	N	447				

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

a Cannot be computed because at least one of the variables is constant.

Highly Ranked Indicators (132 variables) by
Level of Association with Benchmark "*Clothing and Footwear PC*"

Indicator	Level of Significance	Value and Sign of Correlation Coefficient	Number of cases
A.13.2.	0	.779(**)	**440**
AMKClientclothing	0	.721(**)	**359**
HHhClothing	0	.667(**)	447
A.13.1.	0	.661(**)	447
ClothingPCOverExpensePC	0	.564(**)	**446**
TotalHHExpenseYearly	0	.430(**)	**446**
WeeklyFoodExxpenseHH	0	.403(**)	447
D.1.3.	0	.402(**)	447
D.1.1.	0	.398(**)	447
DailyPCExpense	0	.341(**)	**446**
TotalYearlyExpensePC	0	.341(**)	**446**
NUMADULTS	0	.327(**)	447
AssetOrdinal	0	.324(**)	447
A.4.1.	0	.307(**)	447
E.3.3.	0	.306(**)	**445**
WallExpensive	0	.295(**)	447
HHhAge	0	.287(**)	**445**
AssetsHighRangetValue	0	.281(**)	447
A.8.1.	0	.274(**)	**445**
PercentageIncomeEarnerOverTotalHH	0	.265(**)	447
AMKClientAge	0	.261(**)	358
FloorExpensive	0	.260(**)	447
RoofThatch	0	-.258(**)	447
E.3.2.	0	.257(**)	**446**
E.4.3.	0	.257(**)	447
G.12.	0	.255(**)	**446**
D.6.	0	.254(**)	**445**
E.6.1.	0	.251(**)	447
E.6.3.	0	.249(**)	447
G.2.	0	.246(**)	447
AssetsMidRangetValue	0	.240(**)	447
G.3	0	.237(**)	**446**
NUMCSA	0	-.236(**)	447
E.7.	0	.236(**)	**445**
E.3.1.	0	.226(**)	**446**
WallThatch	0	-.221(**)	447
HHTotalLandAreaHa	0	.221(**)	447
D.2.3.	0	.219(**)	**446**
PercentageCASOverChildren	0	-.216(**)	409
PercentageChildrenLESSThan6OverChildren	0	.216(**)	409
B.3.1.1.	0	-.215(**)	447
A.8.2.	0	.213(**)	**438**
E.3.4.2.	0	.206(**)	**446**
HHTotalValueLandinRiel	0	.206(**)	**407**
D.7.1.	0	.204(**)	447

Indicator	Level of Significance	Value and Sign of Correlation Coefficient	Number of cases
F.1.	0	.204(**)	447
F.3.	0	.204(**)	447
B.5.1.4.1.	0	-.201(**)	447
G.9.	0	.198(**)	447
E.4.4.	0	.187(**)	447
E.5.6.	0	.185(**)	447
D.7.1.4.	0	.181(**)	447
AccRankServices	0	.178(**)	447
NonFarmServicesCash0or1	0	.177(**)	447
B.4.1.3.	0	-.176(**)	447
B.4.1.1.	0	-.175(**)	447
E.3.4.1.	0	.175(**)	**446**
E.3.4.3.	0	.173(**)	**446**
Rank1Ceremonies	0	.168(**)	447
B.1.3.1.	0	.166(**)	447
B.1.3.1.	0	.166(**)	447
E.4.2.	0.001	-.163(**)	447
E.5.1.	0.001	.162(**)	447
AccRankCasualLabor	0.001	-.161(**)	447
E.5.3.	0.001	.159(**)	447
RoofMedium	0.001	.157(**)	447
B.6.1.5.1.	0.001	.155(**)	447
B.6.1.5.3.	0.001	.155(**)	447
B.3.3.1.	0.001	-.152(**)	447
Rank1Services	0.001	.151(**)	447
Rank1Food	0.001	-.150(**)	447
C.9.1.	0.002	-.316(**)	**94**
A.1.	0.002	-.149(**)	447
G.5.	0.002	-.147(**)	447
C.11.2.	0.002	.144(**)	447
AccRankBuyGold	0.002	.143(**)	447
B.3.2.1.	0.003	-.141(**)	447
E.4.1.	0.003	.141(**)	447
Rank1Basics	0.003	-.140(**)	447
4.a.	0.003	-.139(**)	447
C.2.2.	0.003	.139(**)	447
AccRankCPR	0.004	-.138(**)	447
RoofExpensive	0.004	.136(**)	447
B.4.4.1.	0.005	.133(**)	447
B.4.4.3.	0.005	.133(**)	447
G.8.10.	0.005	.133(**)	447
CopingSavings	0.005	.133(**)	447
B.4.3.1.	0.005	.132(**)	447
B.4.3.3.	0.005	.132(**)	447
AccRankLoansGiven	0.005	.131(**)	447
Rank1CPR	0.006	-.130(**)	447
AccRankSalariedLabor	0.006	.129(**)	447
NonFarmSalariedLaborCash0or1	0.006	.129(**)	447
G.6.12.	0.007	.127(**)	447

Indicator	Level of Significance	Value and Sign of Correlation Coefficient	Number of cases
NonFarmCasualLaborCash0or1	0.007	-.126(**)	447
FarmCPRCash0or1	0.008	-.126(**)	447
NUMCHILDREN	0.008	-.126(**)	447
B.5.1.4.3.	0.008	-.125(**)	447
D.2.1.	0.009	.123(**)	447
E.1.	0.010	.122(**)	**445**
B.6.1.3.4.	.	1.000(**)	**2**
B.8.1.5.1.	0.010	.121(*)	447
B.8.1.5.3.	0.010	.121(*)	447
NonLoansGivenCash0or1	0.010	.121(*)	447
E.2.3.	0.011	.123(*)	**433**
B.6.1.2.1.	0.011	.120(*)	447
B.6.1.2.3.	0.011	.120(*)	447
D.7.1.1.	0.012	.119(*)	447
AccRankClothing	0.012	.118(*)	447
B.1.3.3.	0.013	.118(*)	447
B.1.3.3.	0.013	.118(*)	447
G.4.	0.015	-.115(*)	447
B.2.1.3.	0.016	.114(*)	447
D.7.1.2.	0.017	.113(*)	447
AccRankBuyOAssets	0.019	.111(*)	447
C.12.2.	0.020	.110(*)	447
B.3.3.3.	0.021	-.109(*)	447
B.2.3.1.	0.029	-.103(*)	447
A.12.1.	0.031	.102(*)	**445**
E.4.7.0.	0.031	.102(*)	447
FarmCash0or1	0.032	.101(*)	447
G.6.11.	0.034	.100(*)	447
G.8.40.	0.037	-.099(*)	447
D.2.2.	0.037	.099(*)	447
NonFarmCash0or1	0.038	.098(*)	447
B.2.3.4.	0.039	.236(*)	**77**
B.6.1.1.1.	0.040	.097(*)	447
AccRankHeatlh	0.044	-.095(*)	447
OtherFoodProducYear0or1	0.044	.095(*)	447
E.2.2.	0.046	.096(*)	**431**
HHhHighEduc	0.046	.095(*)	**445**

Reduction from 132 to 45 variables for Stage 1 of PCA
(ordered by level of association with "*Clothing and Footwear PC*")

Set of 132 highly correlated Variables(ordered by level of significance)	Level of Significance	Correlation Coefficient	Set of 45 initial variables Chosen for PCA and reasons for exclusion
Clothing PC		1	► Chosen: Reference variable
A.13.2.	0	.779(**)	Information is random (may be spouse, head of household or any other member in HH)
AMKClientclothing	0	.721(**)	Irrelevant for nonclient HHs
HHhClothing	0	.667(**)	► Chosen

Set of 132 highly correlated Variables(ordered by level of significance)	Level of Significance	Correlation Coefficient	Set of 45 initial variables Chosen for PCA and reasons for exclusion
A.13.1.	0	.661(**)	Information is random (may be spouse, head of household or any other member in HH)
ClothingPCOverExpensePC	0	.564(**)	Redundant - Covered in ClothingPC and TotalYearlyExpensePC
TotalHHExpenseYearly	0	.430(**)	► Chosen
WeeklyFoodExxpenseHH	0	.403(**)	► Chosen
D.1.3.	0	.402(**)	Redundant - Covered in TotalYearlyExpensePC
D.1.1.	0	.398(**)	Redundant - Covered in TotalYearlyExpensePC
DailyPCExpense	0	.341(**)	Redundant - Covered in TotalYearlyExpensePC
TotalYearlyExpensePC	0	.341(**)	Redundant - Covered in TotalYearlyExpensePC
NUMADULTS	0	.327(**)	► Chosen
AssetOrdinal	0	.324(**)	► Chosen
A.4.1.	0	.307(**)	► Chosen
E.3.3.	0	.306(**)	► Chosen
WallExpensive	0	.295(**)	Redundant - Covered in E.3.3
HHhAge	0	.287(**)	► Chosen
AssetsHighRangetValue	0	.281(**)	Redundant - Covered in Assets Ordinal
A.8.1.	0	.274(**)	Information is random (may be spouse, head of household or any other member in HH)
PercentageIncomeEarnerOverTotal HH	0	.265(**)	Redundant – Covered in A.4.1
AMKClientAge	0	.261(**)	Irrelevant for nonclient HHs
FloorExpensive	0	.260(**)	Redundant – Covered in E.3.1
RoofThatch	0	-.258(**)	Redundant – Covered in E.3.2
E.3.2.	0	.257(**)	► Chosen
E.4.3.	0	.257(**)	► Chosen
G.12.	0	.255(**)	► Chosen
D.6.	0	.254(**)	► Chosen
E.6.1.	0	.251(**)	► Chosen
E.6.3.	0	.249(**)	► Chosen
G.2.	0	.246(**)	► Chosen
AssetsMidRangetValue	0	.240(**)	Redundant – Covered in AssetsOrdinal
G.3	0	.237(**)	► Chosen
NUMCSA	0	-.236(**)	► Chosen
E.7.	0	.236(**)	► Chosen
E.3.1.	0	.226(**)	► Chosen
WallThatch	0	-.221(**)	Redundant – Covered in E.3.3
HHTotalLandAreaHa	0	.221(**)	► Chosen
D.2.3.	0	.219(**)	► Chosen
PercentageCASOverChildren	0	-.216(**)	Redundant – Covered in NUMCAS and NUMCHILDREN
PercentageChildrenLESSThan6Over Children	0	.216(**)	Redundant – Covered in NUMCHILDREN
B.3.1.1.	0	-.215(**)	Covered in AccRankCPR
A.8.2.	0	.213(**)	Information is random (may be spouse, head of household or any other member in HH)

Set of 132 highly correlated Variables(ordered by level of significance)	Level of Significance	Correlation Coefficient	Set of 45 initial variables Chosen for PCA and reasons for exclusion
E.3.4.2.	0	.206(**)	Redundant – Covered in E.3.4.3
HHTotalValueLandinRiel	0	.206(**)	► Chosen
D.7.1.	0	.204(**)	► Chosen
F.1.	0	.204(**)	► Chosen
F.3.	0	.204(**)	Not as useful as F.1.
B.5.1.4.1.	0	-.201(**)	► Chosen
G.9.	0	.198(**)	► Chosen
E.4.4.	0	.187(**)	Higher correlation for E.4.3
E.5.6.	0	.185(**)	► Chosen
D.7.1.4.	0	.181(**)	Redundant – Covered in D.7.1
AccRankServices	0	.178(**)	► Chosen
NonFarmServicesCash0or1	0	.177(**)	Covered in AccRankServices
B.4.1.3.	0	-.176(**)	Covered in AccRankCasualLabor
B.4.1.1.	0	-.175(**)	Covered in AccRankCasualLabor
E.3.4.1.	0	.175(**)	Redundant – Better covered by E.3.4.3
E.3.4.3.	0	.173(**)	► Chosen
Rank1Ceremonies	0	.168(**)	► Chosen
B.1.3.1.	0	.166(**)	► Chosen
E.4.2.	0.001	-.163(**)	Higher correlation from E.4.3
E.5.1.	0.001	.162(**)	► Chosen
AccRankCasualLabor	0.001	-.161(**)	► Chosen
E.5.3.	0.001	.159(**)	Higher correlation from E.5.1 and E.5.3
RoofMedium	0.001	.157(**)	Already covered by E.3.2
B.6.1.5.1.	0.001	.155(**)	Covered in AccRankServices
B.6.1.5.3.	0.001	.155(**)	Covered in AccRankServices
B.3.3.1.	0.001	-.152(**)	Covered in AccRankCPR
Rank1Services	0.001	.151(**)	Covered in AccRankServices
Rank1Food	0.001	-.150(**)	► Chosen
C.9.1.	0.002	-.316(**)	Covered in Rank1Ceremonies
A.1.	0.002	-.149(**)	Not relevant for nonclients
G.5.	0.002	-.147(**)	► Chosen
C.11.2.	0.002	.144(**)	► Chosen
AccRankBuyGold	0.002	.143(**)	► Chosen
B.3.2.1.	0.003	-.141(**)	Covered in AccRankCPR
E.4.1.	0.003	.141(**)	Higher correlation from E.4.3
Rank1Basics	0.003	-.140(**)	A result of positive AccRankFood
4.a.	0.003	-.139(**)	► Chosen
C.2.2.	0.003	.139(**)	Better covered in Expenses in Clothing and Footwear PC
AccRankCPR	0.004	-.138(**)	► Chosen
RoofExpensive	0.004	.136(**)	Covered in E.3.2
B.4.4.1.	0.005	.133(**)	Covered in AccRankSalariedLabor
B.4.4.3.	0.005	.133(**)	Covered in AccRankSalariedLabor
G.8.10.	0.005	.133(**)	Redundant – Covered in CopingSavings
CopingSavings	0.005	.133(**)	► Chosen
B.4.3.1.	0.005	.132(**)	Covered in AccRankSalariedLabor
B.4.3.3.	0.005	.132(**)	Covered in AccRankSalariedLabor
AccRankLoansGiven	0.005	.131(**)	Already covered in D.7.1
Rank1CPR	0.006	-.130(**)	Covered in AccRankCPR

Set of 132 highly correlated Variables(ordered by level of significance)	Level of Significance	Correlation Coefficient	Set of 45 initial variables Chosen for PCA and reasons for exclusion
AccRankSalariedLabor	0.006	.129(**)	► Chosen
NonFarmSalariedLaborCash0or1	0.006	.129(**)	Covered in AccRankSalariedLabor
G.6.12.	0.007	.127(**)	► Chosen
NonFarmCasualLaborCash0or1	0.007	-.126(**)	Covered in AccRankCasualLabor
FarmCPRCash0or1	0.008	-.126(**)	Covered in AccRankCPR
NUMCHILDREN	0.008	-.126(**)	► Chosen
B.5.1.4.3.	0.008	-.125(**)	Redundant – Covered in B.5.1.4.1
D.2.1.	0.009	.123(**)	► Chosen
E.1.	0.010	.122(**)	► Chosen
B.6.1.3.4.	.	1.000(**)	Covered in AccRankServices
B.8.1.5.1.	0.010	.121(*)	Only indicators with correlation significant at 0.01 were chosen
B.8.1.5.3.	0.010	.121(*)	Only indicators with correlation significant at 0.01 were chosen
NonLoansGivenCash0or1	0.010	.121(*)	Only indicators with correlation significant at 0.01 were chosen
E.2.3.	0.011	.123(*)	Only indicators with correlation significant at 0.01 were chosen
B.6.1.2.1.	0.011	.120(*)	Only indicators with correlation significant at 0.01 were chosen
B.6.1.2.3.	0.011	.120(*)	Only indicators with correlation significant at 0.01 were chosen
D.7.1.1.	0.012	.119(*)	Only indicators with correlation significant at 0.01 were chosen
AccRankClothing	0.012	.118(*)	Only indicators with correlation significant at 0.01 were chosen
B.1.3.3.	0.013	.118(*)	Only indicators with correlation significant at 0.01 were chosen
B.1.3.3.	0.013	.118(*)	Only indicators with correlation significant at 0.01 were chosen
G.4.	0.015	-.115(*)	Only indicators with correlation significant at 0.01 were chosen
B.2.1.3.	0.016	.114(*)	Only indicators with correlation significant at 0.01 were chosen
D.7.1.2.	0.017	.113(*)	Only indicators with correlation significant at 0.01 were chosen
AccRankBuyOAssets	0.019	.111(*)	Only indicators with correlation significant at 0.01 were chosen
C.12.2.	0.020	.110(*)	Only indicators with correlation significant at 0.01 were chosen
B.3.3.3.	0.021	-.109(*)	Only indicators with correlation significant at 0.01 were chosen
B.2.3.1.	0.029	-.103(*)	Only indicators with correlation significant at 0.01 were chosen
A.12.1.	0.031	.102(*)	Only indicators with correlation significant at 0.01 were chosen
E.4.7.0.	0.031	.102(*)	Only indicators with correlation significant at 0.01 were chosen
FarmCash0or1	0.032	.101(*)	Only indicators with correlation significant at 0.01 were chosen
G.6.11.	0.034	.100(*)	Only indicators with correlation significant at 0.01 were chosen
G.8.40.	0.037	-.099(*)	Only indicators with correlation significant at 0.01 were chosen
D.2.2.	0.037	.099(*)	Only indicators with correlation significant at 0.01 were chosen

Set of 132 highly correlated Variables(ordered by level of significance)	Level of Significance	Correlation Coefficient	Set of 45 initial variables Chosen for PCA and reasons for exclusion
NonFarmCash0or1	0.038	.098(*)	Only indicators with correlation significant at 0.01 were chosen
B.2.3.4.	0.039	.236(*)	Only indicators with correlation significant at 0.01 were chosen
B.6.1.1.1.	0.040	.097(*)	Only indicators with correlation significant at 0.01 were chosen
AccRankHeatlh	0.044	-.095(*)	Only indicators with correlation significant at 0.01 were chosen
OtherFoodProducYear0or1	0.044	.095(*)	Only indicators with correlation significant at 0.01 were chosen
E.2.2.	0.046	.096(*)	Only indicators with correlation significant at 0.01 were chosen
HHhHighEduc	0.046	.095(*)	Only indicators with correlation significant at 0.01 were chosen

Step 2: ***Choosing the best explanatory variables to test a model and interpret the results***

The AMK-PCA: Clothing and Footwear final index has been constructed with 20 indicators; whereby closely related variables were screened in order to add to the PCA model only the strongest. The interactive process and all the previous AMK-PCA models tested can be found in grey font at the end of the section.

1. Absolute value of the coefficients for each indicator is above 0.300

In AMK-PCA, all the selected coefficients have values between 0.327 to 0.765 as can be seen in Table 4. Table 4 below shows the five components calculated from the indicators.

Table 4: Component Matrix

	Component Loadings				
	1	2	3	4	5
Expenses in Clothing and Footwear PC [Clothing PC]	.615	.235	.257	.375	.212
HHhClothing	.514	.286	.507	.145	.050
NUMADULTS	.561	.226	-.379	-.021	.394
AccRankCasualLabor	-.488	-.149	.114	.101	.641
D.6.	.332	.009	.503	.128	-.243
D.7.1.	.481	-.540	.177	.008	-.355
TotalHHExpenseYearly	.700	.285	-.129	.183	.092
HHTotalLandAreaHa	.490	.159	-.053	-.123	-.129
E.3.1.	.590	.358	.334	-.410	.042
E.3.2.	.761	.241	.146	-.389	.130
E.3.3.	.745	.249	.173	-.322	.066
E.4.3.	.636	-.209	-.181	-.008	.059
E.6.1.	.638	.184	-.414	.207	-.293
E.7.	.552	.186	-.197	.259	.117

	Component Loadings				
	1	2	3	4	5
AssetOrdinal	.765	.181	-.400	.210	-.146
G.2.	.613	-.622	-.126	-.091	.154
G.3	.565	-.619	.112	.143	.244
G.5.	-.498	.644	.048	.188	-.021
G.9.	.647	-.324	-.047	-.137	-.034
G.12.	.327	-.173	.420	.446	-.030

Extraction Method: Principal Component Analysis.
a 5 components extracted.
b Only cases for which A.1. = No are used in the analysis phase.

2. Correct sign of each component coefficient

. **Indicators were accepted if the component loading** (i.e. the coefficients for each component) **had the expected sign** following theory.

3. Eigenvalue of the component is at least 1

The first component explains 34.6% of total variance; the second 11.6%; the third 7.8%; the fourth 5.5% and the fifth 5.3%.

Table 5: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.918	34.589	34.589	6.918	34.589	34.589
2	2.322	11.610	46.199	2.322	11.610	46.199
3	1.559	7.795	53.994	1.559	7.795	53.994
4	1.096	5.481	59.475	1.096	5.481	59.475
5	1.057	5.283	64.758	1.057	5.283	64.758
6	.973	4.865	69.623			
7	.922	4.610	74.234			
8	.860	4.300	78.534			
9	.699	3.497	82.032			
10	.639	3.194	85.226			
11	.543	2.714	87.940			
12	.428	2.139	90.079			
13	.423	2.113	92.192			
14	.360	1.801	93.994			
15	.269	1.344	95.337			
16	.250	1.248	96.586			
17	.220	1.098	97.684			
18	.197	.985	98.670			
19	.150	.751	99.420			
20	.116	.580	100.000			

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

The interactive process to reach the final 20 variables is detailed below.

Test 1 – Complete 45 variables

KMO and Bartlett's Test(a)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.618
Bartlett's Test of Sphericity	Approx. Chi-Square	2488.390
	df	990
	Sig.	.000

a Only cases for which A.1. = No are used in the analysis phase.

Communalities(a)

	Initial	Extraction
ClothingPC	1.000	.771
4.a.	1.000	.780
A.4.1.	1.000	.843
HHhAge	1.000	.742
HHhClothing	1.000	.787
NUMADULTS	1.000	.793
NUMCSA	1.000	.725
NUMCHILDREN	1.000	.801
B.1.3.1.	1.000	.566
B.5.1.4.1.	1.000	.612
AccRankCPR	1.000	.645
AccRankCasualLabor	1.000	.718
AccRankSalariedLabor	1.000	.759
AccRankServices	1.000	.726
C.11.2.	1.000	.714
Rank1Food	1.000	.733
Rank1Ceremonies	1.000	.863
AccRankBuyGold	1.000	.787
D.2.1.	1.000	.850
D.2.3.	1.000	.803
D.6.	1.000	.610
D.7.1.	1.000	.728
WeeklyFoodExxpenseHH	1.000	.790
TotalHHExpenseYearly	1.000	.853
E.1.	1.000	.698
HHTotalLandAreaHa	1.000	.877
HHTotalValueLandinRiel	1.000	.769
E.3.1.	1.000	.761
E.3.2.	1.000	.837
E.3.3.	1.000	.834
E.3.4.3.	1.000	.810
E.4.3.	1.000	.514
E.5.6.	1.000	.761
E.6.1.	1.000	.758
E.6.3.	1.000	.822
E.7.	1.000	.748
AssetOrdinal	1.000	.789
F.1.	1.000	.761
G.2.	1.000	.827
G.3	1.000	.806
G.5.	1.000	.777
G.6.12.	1.000	.820
G.9.	1.000	.719
G.12.	1.000	.759
CopingSavings	1.000	.718

Extraction Method: Principal Component Analysis.

a Only cases for which A.1. = No are used in the analysis phase.

Total Variance Explained(a)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.476	21.058	21.058	9.476	21.058	21.058
2	3.261	7.246	28.304	3.261	7.246	28.304
3	2.907	6.460	34.765	2.907	6.460	34.765
4	2.643	5.874	40.638	2.643	5.874	40.638
5	2.274	5.053	45.691	2.274	5.053	45.691
6	1.965	4.367	50.058	1.965	4.367	50.058
7	1.895	4.212	54.270	1.895	4.212	54.270
8	1.725	3.834	58.104	1.725	3.834	58.104
9	1.618	3.595	61.699	1.618	3.595	61.699
10	1.447	3.215	64.914	1.447	3.215	64.914
11	1.418	3.151	68.065	1.418	3.151	68.065
12	1.313	2.919	70.983	1.313	2.919	70.983
13	1.157	2.570	73.554	1.157	2.570	73.554
14	1.064	2.365	75.919	1.064	2.365	75.919
15	.921	2.047	77.966			
16	.817	1.815	79.781			
17	.798	1.773	81.554			
18	.729	1.619	83.173			
19	.685	1.522	84.695			
20	.623	1.386	86.080			
21	.611	1.357	87.438			
22	.578	1.285	88.723			
23	.549	1.221	89.944			
24	.506	1.125	91.068			
25	.456	1.013	92.081			
26	.410	.911	92.992			
27	.382	.848	93.841			
28	.350	.777	94.618			
29	.293	.651	95.269			
30	.281	.625	95.893			
31	.260	.577	96.470			
32	.207	.459	96.929			
33	.189	.420	97.349			
34	.185	.410	97.759			
35	.175	.390	98.149			
36	.158	.350	98.499			
37	.140	.311	98.809			
38	.135	.301	99.110			
39	.110	.244	99.355			
40	.091	.202	99.557			
41	.068	.151	99.708			
42	.052	.115	99.823			
43	.044	.097	99.920			
44	.035	.077	99.997			
45	.001	.003	100.000			

Extraction Method: Principal Component Analysis.

a Only cases for which A.1. = No are used in the analysis phase.

Component Matrix(a,b)

	Component													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
ClothingPC	.615	.018	.216	-.283	.085	-.033	.375	-.088	-.117	.241	.000	.180	-.007	-.070
4.a.	-.185	.034	-.088	-.057	.049	-.418	-.487	-.003	.291	-.121	.276	.243	.289	.042
A.4.1.	.531	.310	.301	.190	-.009	.182	-.119	.324	-.107	.368	.126	-.053	.133	-.041
HHhAge	.283	.378	.051	-.338	.288	-.059	-.036	-.300	-.177	.385	.174	-.070	.023	-.098
HHhClothing	.473	-.047	.142	-.213	-.115	-.206	.533	.074	-.215	.027	-.131	.272	.061	-.092
NUMADULTS	.603	.310	.315	.088	.135	.226	-.217	.169	-.139	.197	.027	-.120	.078	.023

NUMCSA	-.173	-.077	-.026	.575	-.047	.048	.279	.240	.013	-.349	.092	-.153	.212	.137
NUMCHILDREN	.064	.363	.042	.519	-.116	.100	.275	.176	.021	.027	.419	-.131	.219	.148
B.1.3.1.	.291	.131	-.354	.213	.119	-.262	.299	-.054	-.022	.158	-.085	-.032	.234	.174
B.5.1.4.1.	-.193	.197	.210	.318	.118	.167	-.187	.260	-.204	-.050	-.213	.389	-.075	.002
AccRankCPR	-.207	.146	.109	.120	-.095	-.004	-.335	.285	-.421	-.062	.144	-.078	-.245	-.291
AccRankCasualLabor	-.443	.071	-.034	-.054	.254	-.061	-.122	.303	.192	.475	-.083	.214	.149	.000
AccRankSalariedLabor	.256	.329	.067	.299	.222	.233	.030	-.393	.017	.009	.341	.163	-.298	.029
AccRankServices	.304	-.340	.204	-.079	-.203	.237	.068	-.331	.166	-.050	.125	.078	.297	-.346
C.11.2.	.333	-.311	-.117	.414	-.316	.190	.068	.144	-.060	.209	.265	-.118	-.150	-.081
Rank1Food	-.265	.357	-.019	-.252	-.016	.357	.233	-.235	-.075	.025	.130	.150	.265	.345
Rank1Ceremonies	.130	.404	.078	.367	.536	-.142	.071	-.217	.324	-.066	-.127	-.103	-.136	-.165
AccRankBuyGold	.289	-.191	.340	-.379	.402	.040	.088	.461	.120	-.037	.068	.056	.002	-.007
D.2.1.	.477	.271	-.671	-.131	-.056	.081	-.142	.150	-.024	.047	-.100	-.108	.070	.000
D.2.3.	.550	.348	-.469	-.086	-.073	.040	-.243	.179	.041	.018	-.020	-.225	-.003	-.030
D.6.	.333	-.054	-.109	.072	-.047	-.352	.314	.021	.034	.205	.150	-.169	.043	-.398
D.7.1.	.437	-.577	-.291	.125	.027	.047	.059	-.047	-.098	.106	.092	-.059	-.144	-.203
WeeklyFoodExxpenseHH	.645	.022	.400	-.088	-.310	.050	-.044	.072	.222	-.022	.093	.202	.010	.022
TotalHHExpenseYearly	.764	.156	.216	-.095	-.325	.032	-.140	.130	.186	-.011	.057	.084	.014	.013
E.1.	.362	-.055	-.435	-.002	-.062	.016	.214	.287	.417	-.193	.122	.058	-.019	-.110
HHTotalLandAreaHa	.565	.264	-.586	-.212	.055	.156	-.012	.147	.014	-.065	.014	.138	-.166	.004
HHTotalValueLandinRiel	.329	.215	-.656	-.173	-.020	.218	.042	.009	.077	.011	-.028	.307	-.060	.010
E.3.1.	.584	.227	.049	.101	-.036	-.511	.124	.075	-.146	-.208	-.055	.053	-.036	-.015
E.3.2.	.743	.213	-.040	.102	.086	-.322	.057	.014	-.197	-.136	-.178	-.003	-.054	.145
E.3.3.	.706	.081	.152	.062	-.085	-.253	.046	-.004	-.343	-.141	.007	.137	-.198	.183
E.3.4.3.	.385	.035	.013	.019	.005	-.434	-.421	-.184	-.048	-.178	.397	.224	.131	-.040
E.4.3.	.599	-.107	-.075	.188	.144	.097	-.041	-.109	-.118	.058	-.053	-.083	.138	.110
E.5.6.	.393	-.018	.166	-.215	.453	.188	-.055	-.112	.120	-.215	.108	-.341	-.255	.153
E.6.1.	.639	.079	.062	.105	-.231	.365	-.050	-.194	.033	-.222	-.035	.142	.046	-.168
E.6.3.	.349	-.122	.279	-.400	.326	.106	.143	.429	.177	-.288	.083	-.011	-.019	-.058
E.7.	.583	.072	.175	-.219	.022	-.034	-.050	-.100	.152	-.010	-.230	-.441	.198	.010
AssetOrdinal	.773	.117	.038	-.037	-.080	.265	-.123	-.200	.046	-.154	-.062	.010	.093	-.067
F.1.	.355	.171	.252	-.047	-.530	-.225	-.195	-.014	.151	.098	-.281	-.217	.060	.088
G.2.	.561	-.531	.023	.249	.207	.051	-.261	.029	.037	.060	-.041	-.009	.070	.204
G.3	.524	-.538	-.044	.223	.204	.046	-.044	.079	.080	.261	.015	.168	.037	.186
G.5.	-.433	.461	.195	-.244	-.269	.017	.268	.127	.064	-.076	.273	-.100	-.095	.127
G.6.12.	.056	.412	.149	.516	.376	-.065	.102	-.028	.324	-.020	-.162	.138	.048	-.221
G.9.	.566	-.405	-.020	.052	.221	.083	.018	-.052	-.288	-.199	-.064	.018	.189	.101
G.12.	.329	-.276	.014	-.075	-.083	-.303	.044	-.083	.307	.229	.321	-.046	-.343	.305
CopingSavings	.184	.015	.191	.272	-.359	.080	.036	-.058	.371	.148	-.379	.151	-.303	.124

Extraction Method: Principal Component Analysis.

a 14 components extracted.

b Only cases for which A.1. = No are used in the analysis phase.

The analysis of the component matrix of test 1 indicates the following indicators should be excluded:

Indicators Excluded	**Reasons for Exclusion**
4.a.	The component loading was below .0300
HHhAge	The component loading was below .0300
NUMCSA	The component loading was below .0300
NUMCHILDREN	The component loading was below .0300
B.1.3.1.	The component loading was below .0300
B.5.1.4.1.	The component loading was below .0300
AccRankCPR	The component loading was below .0300
AccRankSalariedLabor	The component loading was below .0300
Rank1Food	The component loading was below .0300
Rank1Ceremonies	The component loading was below .0300
AccRankBuyGold	The component loading was below .0300
G.6.12.	The component loading was below .0300
CopingSavings	The component loading was below .0300

Test 2 –32 variables

KMO and Bartlett's Test(a)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.695
Bartlett's Test of Sphericity	Approx. Chi-Square	1890.619
	df	496
	Sig.	.000

a Only cases for which A.1. = No are used in the analysis phase.

Communalities(a)

	Initial	Extraction
ClothingPC	1.000	.739
A.4.1.	1.000	.840
HHhClothing	1.000	.828
NUMADULTS	1.000	.872
AccRankCasualLabor	1.000	.780
AccRankServices	1.000	.669
C.11.2.	1.000	.758
D.2.1.	1.000	.841
D.2.3.	1.000	.810
D.6.	1.000	.507
D.7.1.	1.000	.681
WeeklyFoodExxpenseHH	1.000	.799
TotalHHExpenseYearly	1.000	.860
E.1.	1.000	.580
HHTotalLandAreaHa	1.000	.873
HHTotalValueLandinRiel	1.000	.743
E.3.1.	1.000	.748
E.3.2.	1.000	.828
E.3.3.	1.000	.828
E.3.4.3.	1.000	.718
E.4.3.	1.000	.492
E.5.6.	1.000	.796
E.6.1.	1.000	.757
E.6.3.	1.000	.703
E.7.	1.000	.748
AssetOrdinal	1.000	.793
F.1.	1.000	.764
G.2.	1.000	.809
G.3	1.000	.781
G.5.	1.000	.825
G.9.	1.000	.667
G.12.	1.000	.661

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

Total Variance Explained(a)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.947	27.960	27.960	8.947	27.960	27.960
2	2.805	8.767	36.726	2.805	8.767	36.726
3	2.663	8.321	45.048	2.663	8.321	45.048
4	1.763	5.511	50.558	1.763	5.511	50.558
5	1.651	5.159	55.717	1.651	5.159	55.717
6	1.591	4.973	60.690	1.591	4.973	60.690
7	1.370	4.280	64.970	1.370	4.280	64.970
8	1.247	3.897	68.867	1.247	3.897	68.867
9	1.047	3.271	72.138	1.047	3.271	72.138
10	1.015	3.173	75.311	1.015	3.173	75.311
11	.944	2.951	78.261			
12	.846	2.645	80.906			

13	.702	2.193	83.099			
14	.677	2.115	85.214			
15	.641	2.004	87.217			
16	.536	1.676	88.893			
17	.493	1.539	90.432			
18	.443	1.386	91.818			
19	.410	1.280	93.098			
20	.380	1.188	94.286			
21	.320	.999	95.285			
22	.267	.836	96.121			
23	.254	.795	96.916			
24	.204	.637	97.553			
25	.188	.586	98.139			
26	.166	.520	98.659			
27	.119	.372	99.031			
28	.099	.310	99.341			
29	.087	.273	99.614			
30	.071	.223	99.837			
31	.050	.158	99.994			
32	.002	.006	100.000			

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

Component Matrix(a,b)

	Component									
	1	2	3	4	5	6	7	8	9	10
ClothingPC	.592	-.033	-.249	.221	.360	-.036	.176	-.313	-.116	.062
A.4.1.	.527	.146	-.284	-.330	-.265	.018	.427	-.295	.069	-.079
HHhClothing	.471	-.003	-.211	.544	.285	.012	.055	-.387	-.167	.059
NUMADULTS	.598	.146	-.296	-.455	-.177	-.168	.237	-.244	.099	-.116
AccRankCasualLabor	-.453	.064	.092	-.117	-.096	-.131	.593	-.089	-.120	.386
AccRankServices	.309	-.369	-.144	-.094	.229	.430	-.245	-.038	-.113	.310
C.11.2.	.346	-.295	.192	-.008	-.226	.475	.219	-.132	.254	-.331
D.2.1.	.485	.501	.560	-.073	-.093	-.031	.003	.024	-.154	.032
D.2.3.	.558	.509	.367	-.136	-.140	-.044	.037	.190	-.163	-.031
D.6.	.320	-.043	.048	.446	-.064	.112	.200	.055	-.311	-.211
D.7.1.	.440	-.486	.425	.132	-.004	.146	.027	-.004	.010	-.179
WeeklyFoodExxpenseHH	.654	-.003	-.419	-.030	.074	.316	.119	.114	.105	.227
TotalHHExpenseYearly	.776	.186	-.278	-.067	-.026	.257	.108	.170	.018	.186
E.1.	.363	.147	.426	.174	.263	.270	.154	.204	.085	-.021
HHTotalLandAreaHa	.565	.478	.516	.000	.185	-.041	.045	-.052	.119	.072
HHTotalValueLandinRiel	.331	.431	.575	.011	.170	.170	-.008	-.168	.098	.148
E.3.1.	.582	.210	-.182	.458	-.222	-.245	-.070	.027	.078	.009
E.3.2.	.738	.176	-.051	.248	-.172	-.375	-.093	-.048	-.006	-.084
E.3.3.	.712	.037	-.222	.292	-.190	-.208	-.104	-.105	.286	-.044
E.3.4.3.	.393	-.001	-.089	.143	-.298	-.172	-.189	.277	.327	.444
E.4.3.	.599	-.189	.141	-.123	-.130	-.070	-.092	-.105	-.119	-.085
E.5.6.	.378	-.090	-.081	-.322	.441	-.393	.014	.300	.169	-.259
E.6.1.	.655	.052	-.066	-.231	.069	.315	-.340	-.172	.133	.001
E.6.3.	.342	-.048	-.164	-.066	.618	-.259	.250	.163	.014	.123
E.7.	.575	.071	-.247	-.193	.150	-.059	-.046	.266	-.425	-.187
AssetOrdinal	.783	.089	-.060	-.268	.122	.117	-.259	-.018	.019	-.020
F.1.	.364	.235	-.418	.017	-.343	.270	-.026	.268	-.371	-.015
G.2.	.566	-.578	.190	-.200	-.183	-.135	.064	.122	-.005	.087
G.3	.520	-.576	.262	-.025	-.073	-.047	.272	-.009	-.029	.164
G.5.	-.437	.476	-.385	.078	.218	.217	.122	.012	.299	-.235
G.9.	.579	-.416	.135	-.025	.112	-.239	-.187	-.176	-.034	-.058
G.12.	.320	-.238	.004	.304	.007	.119	.315	.484	.211	-.127

Extraction Method: Principal Component Analysis.
a 10 components extracted.
b Only cases for which A.1. = No are used in the analysis phase.

The analysis of the component matrix of test 2 indicates the following indicators should be excluded:

Indicators Excluded	Reasons for Exclusion
Number of income earners in the HH [A.4.1.]	Duplicates information with NUMADULTS and has lower component loading: 0.527 vs.0.598
Number of Kg of rice produced in the last year [D.2.1.]	Poverty studies of rural households have found rich households that do not produce rice. "Near-landleness" (i.e. <0.5 Ha per HH) is more the issue that landlessness.[263]
Market value of the rice consumed [D.2.3.]	Poverty studies of rural households have found rich households that do not produce rice. "Near-landleness" (i.e. <0.5 Ha per HH) is more the issue that landlessness
WeeklyFoodExxpenseHH	Better covered in TotalHHExpenseYearly (which includes cash purchases plus consumption from farm production and has lower component loading 0. 654vs.0. 776
Number of Plots of Agricultural Land [E.1]	Poverty studies of rural households have found rich households that do not produce rice. "Near-landleness" (i.e. <0.5 Ha per HH) is more the issue that landlessness
HHTotalValueLandinRiel	Duplicates information with HHTotalLandAreainHa (which has higher component loadings: 0.331 vs.0.565)
Size of the dwelling in squared meters [E.3.4.3]	Already covered in E.3.1, E.3.2 and E.3.3, which have higher component loadings
Car/pick-up/truck [E.6.3]	[E.6.1] has a higher component loading

Test 3 – 24 variables

KMO and Bartlett's Test(a)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.804
Bartlett's Test of Sphericity	Approx. Chi-Square	1020.436
	df	276
	Sig.	.000

a Only cases for which A.1. = No are used in the analysis phase.

Communalities(a)

	Initial	Extraction
ClothingPC	1.000	.763
HHhClothing	1.000	.811
NUMADULTS	1.000	.561
AccRankCasualLabor	1.000	.488
AccRankServices	1.000	.718
C.11.2.	1.000	.618
D.6.	1.000	.398
D.7.1.	1.000	.696
TotalHHExpenseYearly	1.000	.693
HHTotalLandAreaHa	1.000	.550
E.3.1.	1.000	.718
E.3.2.	1.000	.828
E.3.3.	1.000	.736
E.4.3.	1.000	.487
E.5.6.	1.000	.772
E.6.1.	1.000	.758
E.7.	1.000	.636
AssetOrdinal	1.000	.806
F.1.	1.000	.830
G.2.	1.000	.831

[263] The majority of landless households do not obtain their main source of income from agriculture and thus, it is possible to find both relatively prosperous households and also impoverished households. Further information in: Ramamurthy, Bhargavi Sik Boreak, Per Ronnås and Sok Hach (2001) Cambodia 1999-2000: Land, Labour and Rural Livelihood in Focus Cambodia Development Resource Institute (CDRI) Working Paper 21.

G.3	1.000	.766
G.5.	1.000	.745
G.9.	1.000	.631
G.12.	1.000	.740

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

Total Variance Explained(a)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.390	30.790	30.790	7.390	30.790	30.790
2	2.573	10.721	41.511	2.573	10.721	41.511
3	1.662	6.926	48.437	1.662	6.926	48.437
4	1.441	6.006	54.443	1.441	6.006	54.443
5	1.259	5.245	59.688	1.259	5.245	59.688
6	1.171	4.881	64.569	1.171	4.881	64.569
7	1.084	4.518	69.087	1.084	4.518	69.087
8	.965	4.023	73.110			
9	.921	3.837	76.947			
10	.776	3.233	80.180			
11	.696	2.899	83.079			
12	.622	2.593	85.672			
13	.549	2.289	87.961			
14	.455	1.897	89.859			
15	.403	1.677	91.536			
16	.342	1.427	92.963			
17	.334	1.394	94.356			
18	.283	1.179	95.535			
19	.246	1.024	96.560			
20	.220	.918	97.477			
21	.193	.802	98.279			
22	.179	.745	99.025			
23	.124	.517	99.541			
24	.110	.459	100.000			

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

Component Matrix(a,b)

	Component						
	1	2	3	4	5	6	7
ClothingPC	.609	.203	.185	.096	-.321	.413	-.184
HHhClothing	.497	.239	.487	.186	-.380	.150	-.260
NUMADULTS	.565	.242	-.329	-.227	.150	.034	-.001
AccRankCasualLabor	-.495	-.116	.109	-.207	.224	.308	-.172
AccRankServices	.342	-.203	-.229	.612	-.262	.030	-.252
C.11.2.	.359	-.355	.075	.358	.171	-.184	.408
D.6.	.327	-.002	.480	.195	.004	.077	.130
D.7.1.	.486	-.585	.180	.101	-.120	-.094	.227
TotalHHExpenseYearly	.713	.310	-.109	.169	.209	.009	.061
HHTotalLandAreaHa	.471	.130	.020	-.295	-.232	-.109	.397
E.3.1.	.569	.379	.416	-.166	.080	-.204	-.044
E.3.2.	.736	.279	.238	-.361	.039	-.133	-.056
E.3.3.	.732	.260	.255	-.162	.071	-.185	.043
E.4.3.	.627	-.185	-.098	-.138	.087	-.122	-.091
E.5.6.	.393	.004	-.376	-.339	-.135	.525	.262
E.6.1.	.651	.129	-.372	.265	-.195	-.236	.122
E.7.	.575	.248	-.280	.068	.182	.319	-.163
AssetOrdinal	.771	.162	-.391	.063	-.136	-.031	.090
F.1.	.349	.442	-.040	.336	.597	-.061	-.197
G.2.	.619	-.567	-.101	-.143	.282	-.015	-.128

G.3	.566	-.604	.114	-.026	.156	.170	-.123
G.5.	-.485	.580	-.009	.194	-.053	.149	.333
G.9.	.642	-.334	-.037	-.168	-.222	-.020	-.167
G.12.	.340	-.153	.310	.200	.298	.474	.390

Extraction Method: Principal Component Analysis.
a 7 components extracted.
b Only cases for which A.1. = No are used in the analysis phase.

Indicators to Excluded	Reasons for Exclusion
AccRankServices	Duplicates information with C.11.2 and has lower component loading (0.342 and 0.459)
Mobile phone [E.5.6.]	Television and [E.4.3] and Motorcycle [E.6.1] have higher component loadings (0.635 and 0.650 vs. 0.359)
Current outstanding debt of the household F.1.	Information biases towards active AMK clients

Test 4 – 21 variables

KMO and Bartlett's Test(a)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.816
Bartlett's Test of Sphericity	Approx. Chi-Square	895.251
	df	210
	Sig.	.000

a Only cases for which A.1. = No are used in the analysis phase.

Communalities(a)

	Initial	Extraction
ClothingPC	1.000	.702
HHhClothing	1.000	.634
NUMADULTS	1.000	.576
AccRankCasualLabor	1.000	.601
C.11.2.	1.000	.593
D.6.	1.000	.413
D.7.1.	1.000	.686
TotalHHExpenseYearly	1.000	.638
HHTotalLandAreaHa	1.000	.303
E.3.1.	1.000	.723
E.3.2.	1.000	.810
E.3.3.	1.000	.710
E.4.3.	1.000	.488
E.6.1.	1.000	.729
E.7.	1.000	.464
AssetOrdinal	1.000	.810
G.2.	1.000	.795
G.3	1.000	.793
G.5.	1.000	.733
G.9.	1.000	.558
G.12.	1.000	.530

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

Total Variance Explained(a)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.036	33.503	33.503	7.036	33.503	33.503
2	2.412	11.486	44.989	2.412	11.486	44.989
3	1.560	7.427	52.416	1.560	7.427	52.416
4	1.205	5.739	58.155	1.205	5.739	58.155
5	1.076	5.125	63.280	1.076	5.125	63.280
6	.994	4.733	68.013			
7	.922	4.392	72.405			
8	.873	4.159	76.563			
9	.807	3.841	80.405			
10	.695	3.308	83.713			
11	.566	2.697	86.409			
12	.542	2.582	88.992			
13	.425	2.022	91.014			
14	.395	1.881	92.895			
15	.341	1.622	94.517			
16	.268	1.277	95.794			
17	.223	1.060	96.854			
18	.212	1.010	97.864			
19	.194	.924	98.789			
20	.141	.673	99.462			
21	.113	.538	100.000			

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

Component Matrix(a,b)

	Component				
	1	2	3	4	5
ClothingPC	.606	.257	.257	.029	.449
HHhClothing	.507	.296	.508	-.016	.175
NUMADULTS	.557	.238	-.377	-.097	.240
AccRankCasualLabor	-.487	-.148	.109	-.237	.524
C.11.2.	.368	-.369	.042	.555	-.105
D.6.	.336	-.003	.507	.189	-.086
D.7.1.	.500	-.556	.177	.178	-.253
TotalHHExpenseYearly	.697	.285	-.122	.178	.155
HHTotalLandAreaHa	.485	.174	-.052	-.003	-.187
E.3.1.	.580	.380	.332	-.250	-.262
E.3.2.	.750	.284	.140	-.348	-.166
E.3.3.	.740	.262	.174	-.149	-.201
E.4.3.	.639	-.187	-.186	-.085	.050
E.6.1.	.641	.171	-.405	.343	-.081
E.7.	.545	.212	-.198	.015	.288
AssetOrdinal	.759	.201	-.397	.183	.045
G.2.	.622	-.592	-.138	-.189	.049
G.3	.579	-.606	.104	-.070	.274
G.5.	-.498	.583	.066	.372	.055
G.9.	.650	-.294	-.055	-.203	-.073
G.12.	.335	-.190	.425	.384	.231

Extraction Method: Principal Component Analysis.
a 5 components extracted.
b Only cases for which A.1. = No are used in the analysis phase.

Indicators Excluded	**Reasons for Exclusion**
Buying durable assets C.11.2.	Information about assets already covered in Section E (C.11.2 only covers outflows the last 12 months to acquire assets)

Test 5 – 20 variables

KMO and Bartlett's Test(a)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.823
Bartlett's Test of Sphericity	Approx. Chi-Square	858.130
	df	190
	Sig.	.000

a Only cases for which A.1. = No are used in the analysis phase.

Communalities(a)

	Initial	Extraction
ClothingPC	1.000	.685
HHhClothing	1.000	.627
NUMADULTS	1.000	.664
AccRankCasualLabor	1.000	.695
D.6.	1.000	.439
D.7.1.	1.000	.681
TotalHHExpenseYearly	1.000	.629
HHTotalLandAreaHa	1.000	.300
E.3.1.	1.000	.758
E.3.2.	1.000	.828
E.3.3.	1.000	.754
E.4.3.	1.000	.484
E.6.1.	1.000	.741
E.7.	1.000	.459
AssetOrdinal	1.000	.843
G.2.	1.000	.810
G.3	1.000	.795
G.5.	1.000	.700
G.9.	1.000	.545
G.12.	1.000	.514

Extraction Method: Principal Component Analysis.

a Only cases for which A.1. = No are used in the analysis phase.

Total Variance Explained(a)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.918	34.589	34.589	6.918	34.589	34.589
2	2.322	11.610	46.199	2.322	11.610	46.199
3	1.559	7.795	53.994	1.559	7.795	53.994
4	1.096	5.481	59.475	1.096	5.481	59.475
5	1.057	5.283	64.758	1.057	5.283	64.758
6	.973	4.865	69.623			
7	.922	4.610	74.234			
8	.860	4.300	78.534			
9	.699	3.497	82.032			
10	.639	3.194	85.226			
11	.543	2.714	87.940			
12	.428	2.139	90.079			
13	.423	2.113	92.192			
14	.360	1.801	93.994			
15	.269	1.344	95.337			
16	.250	1.248	96.586			
17	.220	1.098	97.684			
18	.197	.985	98.670			
19	.150	.751	99.420			
20	.116	.580	100.000			

Extraction Method: Principal Component Analysis.

a Only cases for which A.1. = No are used in the analysis phase.

Component Matrix(a,b)

	Component				
	1	2	3	4	5
ClothingPC	.615	.235	.257	.375	.212
HHhClothing	.514	.286	.507	.145	.050
NUMADULTS	.561	.226	-.379	-.021	.394
AccRankCasualLabor	-.488	-.149	.114	.101	.641
D.6.	.332	.009	.503	.128	-.243
D.7.1.	.481	-.540	.177	.008	-.355
TotalHHExpenseYearly	.700	.285	-.129	.183	.092
HHTotalLandAreaHa	.490	.159	-.053	-.123	-.129
E.3.1.	.590	.358	.334	-.410	.042
E.3.2.	.761	.241	.146	-.389	.130
E.3.3.	.745	.249	.173	-.322	.066
E.4.3.	.636	-.209	-.181	-.008	.059
E.6.1.	.638	.184	-.414	.207	-.293
E.7.	.552	.186	-.197	.259	.117
AssetOrdinal	.765	.181	-.400	.210	-.146
G.2.	.613	-.622	-.126	-.091	.154
G.3	.565	-.619	.112	.143	.244
G.5.	-.498	.644	.048	.188	-.021
G.9.	.647	-.324	-.047	-.137	-.034
G.12.	.327	-.173	.420	.446	-.030

Extraction Method: Principal Component Analysis.
a 5 components extracted.
b Only cases for which A.1. = No are used in the analysis phase.

Therefore the final AMK-PCA: Clothing and Footwear will include 20 indicators.

Step 3: ***Revise the test model until the results meet the performance requirements.***
Performance requirements involved:

a) Testing the relative size of communalities.

In the AMK-PCA: Clothing and Footwear, all commonalities were above 0.1 with values ranging from 0.300 to 0.843 and thus all fall within an acceptable range, proving they are highly explanatory of poverty.

Table 6: Communalities

	Initial	Extraction
Expenses in Clothing and Footwear PC [Clothing PC]	1.000	.685
HHhClothing	1.000	.627
NUMADULTS	1.000	.664
AccRankCasualLabor	1.000	.695
D.6.	1.000	.439
D.7.1.	1.000	.681
TotalHHExpenseYearly	1.000	.629
HHTotalLandAreaHa	1.000	.300
E.3.1.	1.000	.758
E.3.2.	1.000	.828
E.3.3.	1.000	.754

	Initial	Extraction
E.4.3.	1.000	.484
E.6.1.	1.000	.741
E.7.	1.000	.459
AssetOrdinal	1.000	.843
G.2.	1.000	.810
G.3	1.000	.795
G.5.	1.000	.700
G.9.	1.000	.545
G.12.	1.000	.514

Extraction Method: Principal Component Analysis.
a Only cases for which A.1. = No are used in the analysis phase.

b) Kaiser-Meyer-Olkin measure of sampling adequacy.
In AMK-PCA: Clothing and Footwear, the overall model had a Kaiser-Meyer-Olkin (KMO) index of 0.823, which is a rather good adequacy result.

Table 7: KMO and Bartlett's Test

Test	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.823
Bartlett's Test of Sphericity	
Approx. Chi-Square	858.130
df	190
Sig	.000

a Only cases for which A.1. = No are used in the analysis phase.

Step 4: ***Save the poverty component scores of the final model as a poverty index variable***
When AMK-PCA: Clothing and Footwear was applied to the sample of 450, the model adequacy using the Kaiser-Meyer-Olkin (KMO) test was still good at 0.839. The complete results of step 4 can be found below.

Table 8: AMK-PCA applied to the complete sample (450): KMO and Bartlett's Test

Test	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.839
Bartlett's Test of Sphericity	3167.944
Approx. Chi-Square	190
df	.000
Sig	.000

Table 9: AMK-PCA applied to the complete sample (450): Communalities

	Initial	Extraction
Expenses in Clothing and Footwear PC [Clothing PC]	1.000	.325
HHhClothing	1.000	.203
NUMADULTS	1.000	.178
AccRankCasualLabor	1.000	.123
D.6.	1.000	.099
D.7.1.	1.000	.200
TotalHHExpenseYearly	1.000	.408
HHTotalLandAreaHa	1.000	.216
E.3.1.	1.000	.254
E.3.2.	1.000	.374
E.3.3.	1.000	.454
E.4.3.	1.000	.314
E.6.1.	1.000	.400
E.7.	1.000	.210
AssetOrdinal	1.000	.525
G.2.	1.000	.398
G.3	1.000	.366
G.5.	1.000	.260
G.9.	1.000	.330
G.12.	1.000	.198

Extraction Method: Principal Component Analysis.

Table 10: AMK-PCA applied to the complete sample (450): Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.836	29.179	29.179	5.836	29.179	29.179
2	1.913	9.565	38.744			
3	1.507	7.534	46.278			
4	1.320	6.602	52.880			
5	1.101	5.504	58.384			
6	.910	4.551	62.935			
7	.891	4.453	67.388			
8	.880	4.398	71.786			
9	.711	3.554	75.340			
10	.706	3.531	78.871			
11	.678	3.390	82.261			
12	.602	3.012	85.272			
13	.577	2.884	88.156			
14	.499	2.493	90.649			
15	.442	2.210	92.859			

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
16	.423	2.115	94.974			
17	.297	1.484	96.458			
18	.279	1.395	97.853			
19	.257	1.285	99.138			
20	.172	.862	100.000			

Extraction Method: Principal Component Analysis.

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Table 11: AMK-PCA applied to the complete sample (450): Component Matrix(a)

	Component
	1
Expenses in Clothing and Footwear PC [Clothing PC]	.570
HHhClothing	.451
NUMADULTS	.421
AccRankCasualLabor	-.351
D.6.	.314
D.7.1.	.448
TotalHHExpenseYearly	.639
HHTotalLandAreaHa	.465
E.3.1.	.504
E.3.2.	.611
E.3.3.	.673
E.4.3.	.560
E.6.1.	.633
E.7.	.458
AssetOrdinal	.725
G.2.	.631
G.3	.605
G.5.	-.510
G.9.	.575
G.12.	.446

Extraction Method: Principal Component Analysis.
a 1 components extracted

T- Test - Group Statistics: Clients and Nonclients

	A.1.	N	Mean	Std. Deviation	Std. Error Mean	
REGR factor score 1 for analysis 2	No	90	.2301560	1.16554022	.12285873	
	Yes	360	-.0575390	.94726640	.04992532	

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
REGR factor score 1 for analysis 2	Equal variances assumed	5.769	.017	2.455	448	.014	.28769506	.11719701	.05737090	.51801922
	Equal variances not assumed			2.169	120.009	**.032**	.28769506	.13261525	.02512629	.55026382

Annex 37: Percentages Below National (Rural) Food Poverty Line

BELOW NATIONAL (RURAL) FOOD POVERTY LINE (R 1,550) BY TYPE OF CLIENT– CROSSTABULATION

Crosstabulation

			A.1.		
			No	Yes	Total
Below1550	0	Count	39	91	130
		% within A.1.	43.3%	25.3%	28.9%
	1	Count	51	269	320
		% within A.1.	56.7%	74.7%	71.1%
Total		Count	90	360	450
		% within A.1.	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	11.426(b)	1	**.001**		
Continuity Correction(a)	10.564	1	.001		
Likelihood Ratio	10.813	1	.001		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	11.400	1	.001		
N of Valid Cases	450				

a Computed only for a 2x2 table
b 0 cells (.0%) have expected count less than 5. The minimum expected count is 26.00.

BELOW NATIONAL (RURAL) FOOD POVERTY LINE (R 1,550) BY SENIORITY OF CLIENT– CROSSTABULATION

Crosstab

			ClientSeniority				Total
			New Client (<1 year)	Beginner (1-2 years)	Senior (>=2 years)	NonClient	
Below1550	0	Count	38	17	36	39	130
		% within ClientSeniority	25.0%	22.1%	27.5%	43.3%	28.9%
	1	Count	114	60	95	51	320
		% within ClientSeniority	75.0%	77.9%	72.5%	56.7%	71.1%
Total		Count	152	77	131	90	450
		% within ClientSeniority	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.125(a)	3	**.007**
Likelihood Ratio	11.580	3	.009
Linear-by-Linear Association	11.455	1	.001
N of Valid Cases	450		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 22.24.

Annex 38: Comparison of Absolute and Relative Tools for all Client Households

COMPARISON FOR CLIENT HOUSEHOLDS

Crosstab

			Below1550		
			0	1	Total
WellbeingGROUP3	Poorer	Count	20	142	162
		% within WellbeingGROUP3	12.3%	87.7%	100.0%
	Medium	Count	42	94	136
		% within WellbeingGROUP3	30.9%	69.1%	100.0%
	Better-off	Count	29	33	62
		% within WellbeingGROUP3	46.8%	53.2%	100.0%
Total		Count	91	269	360
		% within WellbeingGROUP3	25.3%	74.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	31.774(a)	2	**.000**
Likelihood Ratio	32.136	2	.000
Linear-by-Linear Association	31.614	1	.000
N of Valid Cases	360		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.67.

Crosstab

			Below1550		
			0	1	Total
WellBeingGroup4	Poorest(4)	Count	7	91	98
		% within WellBeingGroup4	7.1%	92.9%	100.0%
	Poor	Count	31	100	131
		% within WellBeingGroup4	23.7%	76.3%	100.0%
	Medium	Count	27	52	79
		% within WellBeingGroup4	34.2%	65.8%	100.0%
	Better-off	Count	26	26	52
		% within WellBeingGroup4	50.0%	50.0%	100.0%
Total		Count	91	269	360
		% within WellBeingGroup4	25.3%	74.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	37.383(a)	3	**.000**
Likelihood Ratio	39.713	3	.000
Linear-by-Linear Association	36.916	1	.000
N of Valid Cases	360		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.14.

Crosstab

			WellbeingGROUP3			
			Poorer	Medium	Better-off	Total
UPDATEDBelow1550	0	Count	20	42	29	91
		% within UPDATEDBelow1550	22.0%	46.2%	31.9%	100.0%
	1	Count	142	94	33	269
		% within UPDATEDBelow1550	52.8%	34.9%	12.3%	100.0%
Total		Count	162	136	62	360
		% within UPDATEDBelow1550	45.0%	37.8%	17.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	31.774(a)	2	**.000**
Likelihood Ratio	32.136	2	.000
Linear-by-Linear Association	31.614	1	.000
N of Valid Cases	360		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.67.

Crosstab

			WellBeingGroup4				
			Poorest(4)	Poor	Medium	Better-off	Total
UPDATEDBelow1550	0	Count	7	31	27	26	91
		% within UPDATEDBelow1550	7.7%	34.1%	29.7%	28.6%	100.0%
	1	Count	91	100	52	26	269
		% within UPDATEDBelow1550	33.8%	37.2%	19.3%	9.7%	100.0%
Total		Count	98	131	79	52	360
		% within UPDATEDBelow1550	27.2%	36.4%	21.9%	14.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	37.383(a)	3	**.000**
Likelihood Ratio	39.713	3	.000
Linear-by-Linear Association	36.916	1	.000
N of Valid Cases	360		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.14.

Annex 39: Comparison of Absolute and Relative Tools for New Client Households

COMPARISON FOR NEW CLIENT HOUSEHOLDS [ONLY]

Crosstab

			Below1550		
			0	1	Total
WellbeingGROUP3	Poorer	Count	7	63	70
		% within WellbeingGROUP3	10.0%	90.0%	100.0%
	Medium	Count	18	35	53
		% within WellbeingGROUP3	34.0%	66.0%	100.0%
	Better-off	Count	13	16	29
		% within WellbeingGROUP3	44.8%	55.2%	100.0%
Total		Count	38	114	152
		% within WellbeingGROUP3	25.0%	75.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.751(a)	2	**.000**
Likelihood Ratio	17.623	2	.000
Linear-by-Linear Association	15.909	1	.000
N of Valid Cases	152		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.25.

Crosstab

			Below1550		
			0	1	Total
WellBeingGroup4	Poorest(4)	Count	3	39	42
		% within WellBeingGroup4	7.1%	92.9%	100.0%
	Poor	Count	11	42	53
		% within WellBeingGroup4	20.8%	79.2%	100.0%
	Medium	Count	13	20	33
		% within WellBeingGroup4	39.4%	60.6%	100.0%
	Better-off	Count	11	13	24
		% within WellBeingGroup4	45.8%	54.2%	100.0%
Total		Count	38	114	152
		% within WellBeingGroup4	25.0%	75.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.854(a)	3	**.001**
Likelihood Ratio	17.846	3	.000
Linear-by-Linear Association	16.292	1	.000
N of Valid Cases	152		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.00.

Crosstab

			WellbeingGROUP3			Total
			Poorer	Medium	Better-off	
UPDATEDBelow1550	0	Count	7	18	13	38
		% within UPDATEDBelow1550	18.4%	47.4%	34.2%	100.0%
	1	Count	63	35	16	114
		% within UPDATEDBelow1550	55.3%	30.7%	14.0%	100.0%
Total		Count	70	53	29	152
		% within UPDATEDBelow1550	46.1%	34.9%	19.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.751(a)	2	**.000**
Likelihood Ratio	17.623	2	.000
Linear-by-Linear Association	15.909	1	.000
N of Valid Cases	152		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.25.

Crosstab

			WellBeingGroup4				Total
			Poorest(4)	Poor	Medium	Better-off	
UPDATEDBelow1550	0	Count	3	11	13	11	38
		% within UPDATEDBelow1550	7.9%	28.9%	34.2%	28.9%	100.0%
	1	Count	39	42	20	13	114
		% within UPDATEDBelow1550	34.2%	36.8%	17.5%	11.4%	100.0%
Total		Count	42	53	33	24	152
		% within UPDATEDBelow1550	27.6%	34.9%	21.7%	15.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.854(a)	3	**.001**
Likelihood Ratio	17.846	3	.000
Linear-by-Linear Association	16.292	1	.000
N of Valid Cases	152		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.00.

REFERENCES

Aafjes, Astrid (1996) *Credit Needs and the Credit Providers in the Rural Areas*. Phnom Penh: Credit Committee for Rural Development.

ACLEDA Bank Limited (2003) Annual Report 2002.

ACLEDA Bank Plc (2007) Annual Report 2006.

ACLEDA Bank website http://www.acledabank.com.kh

Adams, Dale W and R. C. Vogel (1986) Rural Financial Markets in Low-income Countries: Recent Controversies and Lessons. *World Development* 14 (4): 477-487.

Adams, Dale W, Douglas H. Graham and J.D. Von Pischke (1984) *Undermining Rural Development with Cheap Credit.* Boulder, Colorado, USA: Westview Press.

Adams, Dale W. (1998) *The Decline in Debt Directing: An Unfinished Agenda*. Paper presented at the Second Annual Seminar on New Development Finance, Goethe University of Frankfurt, 21- 25 September.

Adelman, Irma and Cynthia T Morris (1973) *Economic Growth and Social Equity in Developing Countries*. Stanford, CA: Stanford University Press.

Adelman, Irma and Cynthia T. Morris (1967) *Society, Politics, and Economic Development.* Baltimore, MD: Johns Hopkins University Press.

Agrifood Consulting International, ACI (2002) *Rice Value Chain Study: Cambodia.* Report Prepared for the World Bank. Phnom Penh: Agrifood Consulting International.

Ahmed, Mahfuzuddin, Hap Navy, Ly Vuthy and Marites Tiongco (1998) *Socio-Economic Assessment of Freshwater Capture Fisheries of Cambodia – Report On a Household Survey*, Phnom Penh: Project for Management of Freshwater Capture Fisheries of Cambodia, Department of Fisheries, Cambodia; Danish International Development Assistance (DANIDA) and Mekong River Commission (MRC).

Aleem, Irfan (1990) Imperfect Information, Screening, and the Costs of Informal Lending: A study of a Rural Credit Market in Pakistan. *World Bank Economic Review*, 4 (3): 329-349.

AMK (2007b) AMK Social Performance Management in Practice *Imp-Act Consortium 'SPM in Practice Series.'* Sussex: Institute of Development Studies, IDS. http://www2.ids.ac.uk/impact/news/AMK_SPM_in_Practice.pdf

AMK Co Ltd (2007a) Annual Report 2006

AMK Co Ltd (2006) Annual Report 2005

AMK Co Ltd (2005) Annual Report 2004

AMK website: www.amkcambodia.com

AMRET Co Ltd (2007) Annual Report 2006 - Financial Statements and Auditors' Report 31 December 2006.

Armendariz de Aghion, B. and J. Morduch (2000) Microfinance Beyond Group Lending. *Economics of Transition* 8 (2): 401-420.

Armendáriz de Aghion, Beatriz and Jonathan Morduch (2003) *Microfinance: Where Do We Stand?* Harvard University. Mimeo. http://www.economics.harvard.edu/faculty/armendariz/papers/Microfinance_Where_Do_We.pdf

Armendáriz de Aghion, Beatriz and Jonathan Morduch (2005) *The Economics of Microfinance*. Cambridge, Massachusetts: The MIT Press.

Asian Development Bank, ADB (2003) *Program Performance Audit Report on the Agriculture Sector Program (Loan 1445-CAM [SF]) in Cambodia*. PPA: CAM 27154. http://www.adb.org/Documents/PPARs/CAM/PPAR_CAM_27154.pdf

Asian Development Bank, ADB and Royal Government of Cambodia, RGC (2001) *Cambodia: Financial Sector Blueprint for 2001-2010*. Phnom Penh, Cambodia.

Asian Development Bank, *ADB's Rural Credit and Savings loan documentation* (2000) (CAM 30237-01). http://www.adb.org/Documents/Profiles/LOAN/30237013.ASP

Atkinson, A. and Bourguignon, F. (1982) The Comparison of Multidimensioned Distributions of Economic Status. *Rev. Econom. Stud*. 49: 183–201.

Bainbridge, Bill (2003) "Acleda bank seeks commercial license" *Phnom Penh Post*. September 24 - October 9, 2003, p. 7.

Ballard, Brett M. (2007b) Chapter 1: Introduction to The Tonle Sap Participatory Poverty Assessment, pp. 9-17 in Ballard, ed. '*We Are Living with Worry All the Time': A Participatory Poverty Assessment of the Tonle Sap*. Phnom Penh: Cambodia Development Resource Institute, CDRI.

Ballard, Brett M. (2007c) Chapter 3: Listening to Cambodia's Poor: Concepts and Methods Guiding the Tonle Sap PPA, pp. 50-61 in Ballard, ed. '*We Are Living with Worry All the Time': A Participatory Poverty Assessment of the Tonle Sap*. Phnom Penh: Cambodia Development Resource Institute, CDRI.

Ballard, Brett M. ed. (2007) '*We Are Living with Worry All the Time': A Participatory Poverty Assessment of the Tonle Sap*. Phnom Penh: Cambodia Development Resource Institute, CDRI.

Banerjee, Abhijit (2001) Contracting Constraints, Credit Markets and Economic Development. *MIT Dept. of Economics Working Paper No. 02-17.*

Barua, Proloy, and Munshi Sulaiman (2006) Targeting the Poorest in Microfinance: Poverty Outreach of BDP Ultra Poor Programme. Dhaka, Bangladesh: BRAC, *CFPR/TUP Working Paper Series*, Working Paper No. 13.

Bateman Milford (2003) 'New Wave' Microfinance Institutions in South East Europe: Towards a More Realistic Assessment of Impact, *Small Enterprise Development*, 14 (3): 56-65.

Bell, Clive (1993) Interactions between Institutional and Informal Credit Agencies in Rural India, pp. 186-213 in Hoff, Karla, Avishay Braverman and Joseph E. Stiglitz (eds.) *The Economics of Rural Organization: Theory, Practice and Policy*. New York (USA): Oxford University Press for World Bank.

Benkirane, Lamya (2003) *EMT Client Led Assessment*. Phnom Penh: EMT.

Besley, Timothy and Stephen Coate (1995) Group Lending, Repayment Incentives and Social Collateral. *Journal of Development Economics,* 46: 1-18.

Besley, Timothy, Stephen Coate and Glenn Loury (1993) The Economics of Rotating Savings and Credit Associations. *The American Economic Review*, 83 (4): 792-810.

Biggar, Nigel and Rekha Reddy (2006) Addendum: Experience of Grameen Foundation and Accion International in Daley-Harris and Awimbo *More Pathways Out of Poverty.* Bloomfield, CT, USA: Kumarian Press.

Bourguignon, Francois and Satya R. Chakravarty (2003) The Measurement of Multidimensional Poverty. *Journal of Economic Inequality* 1:25-49. http://siteresources.worldbank.org/INTPA/Resources/429966-1092778639630/bourguignon.pdf

Bousso, Pascal and P. Daubert, N. Gauthier, M. Parent and C. Zieglé (1997) *The micro-economic impact of rural credit in Cambodia.* Phnom Penh: GRET.

Braverman, Avishay and J. L. Guasch (1986) Rural Credit Markets and Institutions in Developing Countries: Lessons for Policy Analysis from Practice and Modern Theory. *World Development,* 14: 1253-1267.

Braverman, Avishay and Joseph E. Stiglitz (1982) Sharecropping and the Interlinking of Agrarian Market. *The American Economic Review,* 72 (4): 695-715.

Brody, Alyson, Martin Greeley and Katie Wright-Revolledo (2005) *Money with a Mission- Vol. 2. Managing Social Performance of Microfinance*. Brighton, England: Intermediate Technology Development Group, ITDG; Institute of Development Studies, IDS. Imp-Act Programme.

Bruck, Connie (2006) "Millions for Millions" *The New Yorker.* October 30, 2006.

Bun, Mony (2007) *Cambodian Microfinance Association: New Product Development of Microfinance within the Cambodia Context* – Presentation at the Microfinance Summit 2007: Reaching New Heights. Phnom Penh, November 29, 2007.

Cambodian Economic Association, CEA (2006) *Cambodian Economic Review* (2). Phnom Penh: CEA.

Cambodian Entrepreneur Building Ltd (2007) Annual Report 2006.

Carletto, Gero and Alberto Zezza (2004) Being Poor, Feeling Poorer: Combining Objective and Subjective Measures of Welfare in Albania. *ESA Working Paper* No. 04-12. Food and Agriculture Organization of the United Nations: Agricultural and Development Economics Division. ftp://ftp.fao.org/docrep/fao/007/ae067e/ae067e00.pdf

Cater, Robert (1996) *Framework for the Establishment of a Financial Services Program in Kampong Thom*. Phnom Penh: GTZ and Ministry of Rural Development.

Chakravarty, Satya R. (1983) A New Index of Poverty. *Mathematical Social Science*, 6: 307-13.

Chambers, Robert (1992) Rural Appraisal: Rapid, Relaxed, and Participatory. *IDS Discussion Paper* No. 331. Brighton: IDS. http://www.ids.ac.uk/ids/bookshop/dp/dp311.pdf

Chambers, Robert (1994a) Participatory Rural Appraisal (PRA): Analysis of Experience *World Development* 22 (9): 1253-1268.

Chambers, Robert (1994b) Participatory Rural Appraisal (PRA): Challenges, Potential and Paradigm *World Development* 22 (10): 1-17.

Chambers, Robert (1997) *Whose Reality Counts? Putting the Last First* London: Intermediate Technology Development Group, ITDG.

Chandler, David P (1999) *Brother Number One A Political Biography of Pol Pot*. Chiang Mai, Thailand: Silkworm Books.

Chaudhuri, Shubham (2001) *Reconceptualizing Poverty Assessments to Take Account of Vulnerability*. Workshop on Poverty and Vulnerability. Third Asia Development Forum. Bangkok, June 13.

Chaudhuri, Shubham (2003) *Assessing Vulnerability to Poverty: Concepts, Empirical Methods and Illustrative Examples*. Columbia University: Department of Economics.

Chaudhuri, Shubham Jalan, J and Suryahadi, A. (2001) *Assessing Household Vulnerability to Poverty: A Methodology and Estimates for Indonesia*, paper presented Workshop on Poverty and Vulnerability. Third Asia Development Forum. Bangkok, June 13.

Chea, Yim and Bruce McKenney (2003a) Great Lake Fish Exports: An Analysis of the Fee System. *Cambodia Development Review 7- 3, July-September.* Phnom Penh: CDRI.

Chea, Yim and Bruce McKenney (2003b) Fish Exports from the Great Lake to Thailand: An Analysis of Trade Constraints, Governance and Climate for Growth. *Cambodia Development Resource Institute (CDRI) Working Paper 27.* Phnom Penh: CDRI.

Chetan, Tanmay (2007) Are Financial and Social Objectives Mutually Exclusive? The Experience of AMK, Cambodia. *Small Enterprise Development Journal, Vol. 18 (1): 65-78.*

Chowdhury A., R. Mushtaque, Paul Mosley and Anton Simanowitz (2004) Introduction in Mushtaque R., A. Chowdhury and Paul Mosley (eds.) *Journal of International Development. Special Issue: The Social Impact of Microfinance* 16 (3): 291 – 300.

Christen Robert Peck (2000) Commercialization and Mission Drift: The Transformation of Microfinance in Latin America *CGAP Occasional Paper No. 5.* Washington D.C.: CGAP.

Christen, Robert Peck and Richard Rosenberg (2000) The Rush to Regulate: Legal Frameworks for Microfinance. *CGAP Occasional Paper No. 4* Washington, D.C.: CGAP.

Christen, Robert, B. Helms and R. Rosenberg (1999) Format for Appraisal of Microfinance Institutions: A Handbook. *CGAP Technical Tool Series No. 4*. Washington, D.C.: CGAP.

Chronic Poverty Research Centre, CPRC (2004) The Chronic Poverty Report 2004-05. Manchester, UK: Chronic Poverty Research Centre.

CIDA website http://www.acdi-cida.gc.ca/CIDAWEB/acdicida.nsf/En/JUD-3111122-LZK

Clark, Heather A (2006) *When There Was No Money: Building ACLEDA Bank in Cambodia's Evolving Financial Sector*. Berlin, Germany: Springer.

Cohen M, Sebstad J. (2000) Microfinance, Risk Management and Poverty. *AIMS Paper*. Washington D.C.: Management Systems International.

Conroy, John D (2003) The Challenges of Microfinancing in Southeast Asia in Nick Freeman (ed.) *Financing Southeast Asia's Economic Development*. Singapore: Institute of Southeast Asian Studies. http://www.fdc.org.au/files/mfinseasia2.pdf

Consultative Group to Assist the Poor, CGAP (2000) Assessing the Relative Poverty of Microfinance Clients: A CGAP Operational Tool Technical Tool No. 5 - Overview, 2000. Washington DC: International Food Policy Research Institute, IFPRI. http://www.cgap.org/docs/TechnicalTool_05_overview.pdf

Consultative Group to Assist the Poor, CGAP (2007) The Progress out of Poverty Index: An Assessment Tool in Practice *Portfolio 8/2007-Targeting Poorer Clients.* http://cgap.org/portal/site/portfolio/Aug2007/

Conway, Tim and Andy Norton (2002) Nets, Ropes, Ladders and Trampolines: The Place of Social Protection within Current Debates on Poverty Reduction. *Development Policy Review, 20 (5):533-540.*

Conway, Tim and Carrie Turk (2001) *Addressing Vulnerability and Providing Social Protection: Localizing IDTs for Poverty Reduction in Viet Nam*. Hanoi: World Bank/Poverty Task Force.

Conway, Timothy Hugh (1999) *Poverty, Participation and Programmes: International Aid and Rural Development in Cambodia.* PhD thesis, Department of Geography, University of Cambridge. Mimeo.

Copestake, James (2003) Institutionalising Social Performance Monitoring, Assessment and Auditing of Microfinance. *IDS Bulletin* 34 (4): 21-33. Brighton: Institute of Development Studies, IDS.

Copestake, James; Martin Greeley; Susan Johnson; Naila Kabeer; and Anton Simanowitz (2005) *Money with a Mission- Vol. 1. Microfinance and Poverty Reduction.* Brighton, England: Intermediate Technology Development Group, ITDG; Institute of Development Studies, IDS. Imp-Act Programme.

Copestake, James; Peter Dawson; J.P. Fanning; Andrew McKay; and Katie Wright-Revolledo (2005) Monitoring the Diversity of the Poverty Outreach and Impact of Microfinance: A Comparison of Methods Using Data from Peru. *Development Policy Review*, 23 (6): 703-723.

Coudouel, Aline, Jesko S. Hentschel and Quentin T. Wodon (2002) Poverty Measurement and Analysis in Klugman, Jeni (ed.), *A Sourcebook for Poverty Reduction Strategies* Washington D.C.: The World Bank. http://povlibrary.worldbank.org/files/5467_chap1.pdf

Council for Social Development, CSD (2002) *National Poverty Reduction Strategy (NPRS) 2003-2005*. Second draft 30 October 2002.

CREDIT Ltd (2007) Annual Report 2006 - Financial Statements and Auditors' Report. 31 December 2006.

Dean, Katie (2007) Cambodia Economic Update *Economics@ANZ* – ANZ Investment Bank. Melbourne: ANZ Economic Publications & Research. http://www.anz.com/documents/economics/CambodiaEconomicUpdateJun07.pdf

Deaton, A. (1992) Savings and Income Smoothing in Cote de'Ivoire. *Journal of African Economies* 1 (1):1-24.

Deutsch, Joseph and Jacques Silber (2005) Measuring Multidimensional Poverty: An Empirical Comparison of Various Approaches. *Review of Income and Wealth*, 51(1): 145-74.

Dewez, David, Karen Horn Welch and Patricia Lee Devaney (2003), ACCION Poverty Outreach Findings: SOGESOL, Haiti. *InSight* No. 8. Boston, MA: ACCION.

Dewez, David, Rekha Reddy and Sandra Neisa (2005), Poverty Outreach Findings: BancoSol, Bolivia. *InSight* No. 13. Boston, MA: ACCION.

Dewez, David, Sandra Neisa and Rekha Reddy (2006), ACCION Poverty Outreach Findings & Analysis: Apoyo Integral, El Salvador. *InSight* No. 17. Boston, MA: ACCION.

Dewilde, Caroline (2004) The Multidimensional Measurement of Poverty in Belgium and Britain: A Categorical Approach. *Social Indicators Research*, 68 (3): 331-69.

Diagne, Aliou and Manfred Zeller (2001) Access to Credit and Its Impact on Welfare in Malawi *Research Report 116.* Washington D.C.: IFPRI.

Dichter T (2006) *Hype and Hope: The Worrisome State of the Microcredit Movement*. The South African Institute of International Affairs (website).

Dowla, Asif and Dipal Barua (2006) *The Poor Always Pay Back: The Grameen II Story.* Bloomfield, CT, USA: Kumarian Press.

Economic Institute of Cambodia, EIC (2005) Cambodia Economic Watch (2). Phnom Penh: EIC.

Economic Institute of Cambodia, EIC (2007) Cambodia Economic Watch (6). Phnom Penh: EIC.

El Nuevo Día (2007) "Bolivia cobra el interés mas bajo de la región" *El Nuevo Día - Ejecutivos* Sunday, 11 November 2007, p.B5.

El País (2006) "El Nobel de la Paz premia al 'banquero de los pobres', Mohamed Yunus" *El País,* 13 Octubre. *http://www.elpais.com/articulo/sociedad/Nobel/Paz/premia/banquero/pobres/Mohamed/Yunus/elpporsoc/20061013elpepusoc_1/Tes*

Ellerman D (2006), Comments on the Microfinance Industry, University of California at Riverside.

Fafchamps, Marcel and Forhad Shilpi (2004) Isolation and Subjective Welfare. *Oxford Department of Economics Discussion Paper Series* Number 216. (Earlier version: Fafchamps and Shilpi Subjective Welfare, Isolation and Relative Consumption: http://ideas.repec.org/e/pfa2.html)

Far Eastern Economic Review (2003) Economic Monitor: Cambodia (March 13, 2003), Vol: 166 (10).

Farmar, Tony (2002) *Believing in Action: The First Thirty Years of Concern 1968-1998.* Dublin: A.& A. Farmar.

Farrell, Chris (2006) Microfinance: Services the Poor Can Bank. On *Business Week.* May 2.

FinanceAsia website www.financeasia.com

FitzGerald, Ingrid (2007) Chapter 5: Gender Dimensions of Poverty, pp. 109-149 in Ballard, ed. '*We Are Living with Worry All the Time': A Participatory Poverty Assessment of the Tonle Sap*. Phnom Penh: Cambodia Development Resource Institute, CDRI.

FitzGerald, Ingrid and Sovannarith So *with* Chan Sophal, Kem Sithen and Tuot Sokphally (2007) '*Moving Out of Poverty? Trends in Community Well-being and Household Mobility in Nine Cambodian Villages*. Phnom Penh: Cambodia Development Resource Institute, CDRI.

Food and Agriculture Organization of the United Nations, FAO and Deutsche Gesellschaft für Technische Zusammenarbeit, GTZ (1998) Agricultural Finance Revisited: Why? *Agricultural Finance Revisited Series*, No. 1. Rome: FAO. http://www.fao.org/ag/ags/agsm/RuralFinance/pdf/afr1_e.pdf

Freeman, David, R. Pisani and R. Purves, R. (1978) *Statistics* New York: W. W. Norton. & Company.

Frieson, Kate (1996) 'The Cambodian Elections of 1993: A Case of Power to the People?,' pp. 224-242 in R.H. Taylor, ed., *The Politics of Elections in Southeast Asia.* Washington D.C.: Woodrow Wilson Center Press, copublished with Cambridge University Press.

Fujii, Tomoki 2007. "To use or not to use?: Poverty Mapping in Cambodia." in Bedi, T., Coudouel, A., and Simler, K. (eds.) *More Than a Pretty Picture: Using Poverty Maps to Design Better Policies and Interventions*, pp. 125-142. Washington DC: The World Bank. http://siteresources.worldbank.org/INTPGI/Resources/342674-1092157888460/493860-1192739384563/10412-06_p125-142.pdf

Fürher, Helmut (1996) *The story of Official Development Assistance. A History of the Development Assistance Committee and the Development Cooperation Directorate in Dates, Names and Figures*. Paris: Organization for Economic Cooperation and Development, OEDC.

Ghatak, Maitressh and Timothy W. Guinnane (1999) The Economics of Lending with Joint Liability: Theory and Practice. *The Journal of Development Economics* 60: 195-228.

Gibson, John (2003a) *A Quantitative Analysis of Rural Livelihoods in Cambodia Based on Evidence from the 1999 Cambodia Socio-Economic Survey*. Prepared for the Rural Sector Strategy Note Study. Washington D.C.: World Bank. Mimeo.

Gibson, John (2003b) *A Quantitative Analysis of Rural Livelihoods in Cambodia Based on CSES 1999*. Mimeo.

Global Distribution of Poverty Web site of the Center for International Earth Science Information Network, Columbia University at http://www.ciesin.columbia.edu/povmap

Goldberg, Mike and Tillman Bruett (2001) *Principles of Microfinance: Institutional Structure and Delivery Mechanisms*. World Bank Microfinance for Non-Specialists Distance Learning Course, October 18. http://www.worldbank.org/wbi/banking/eastasiamicro/pdf/24 and http://www.worldbank.org/wbi/banking/eastasiamicro/pdf/mod02_finsvcs_matrix.pdf

Goldstein, G. Dominique Gentil and Issa Barro (1999) *The Role and Impact of Savings Mobilization in West Africa: A study of the Informal and Intermediary Financial Sectors* UNDP-UNCDF. http://www.undp.org/sum/MicroSave/ftp_downloads/raantome1.pdf

Gonzalez-Vega, Claudio (1984) Credit Rationing Behavior of Agricultural Lenders: The Iron Law of Interest-Rate Restrictions pp. 78-96 in Adams D.W et al (eds.) *Undermining Rural Development with Cheap Credit*. Boulder: Westview Press.

Gonzalez-Vega, Claudio (2003) Macroeconomic Policy and Political Framework in the Development of Rural Financial Markets, Ohio State University Rural Finance Program. www.basis.wisc.edu/rfc/documents/theme_macro.pdf

Green , Caroline (2002) "Microfinance: who is helping whom?" *Phnom Penh Post*. May 24-June 6, pp. 8-9.

Green, Caroline (2003) "NBC postpones micro-finance measure" *Phnom Penh Post*. Jan 3 -16, p. 5.

GRET (2003) GRET's *Health Insurance Project Cambodia: Briefing Note September 2003*. Phnom Penh: GRET. Mimeo.

GRET (2007a) SKY Health Insurance Project Cambodia**:** Briefing Note March 2007. www.sky-cambodia.org/downloads/SKY_Briefing_Note_March%202007%20GB.doc

GRET (2007b) GRET "SKY" Health Insurance Program in Cambodia**:** Developing Health Insurance to Reduce the Impact of Health Problems on Cambodian Households. http://www.sky-cambodia.org/downloads/SKY_English.pdf

Grosh Margaret E. and Paul Glewwe (1995) A Guide to Living Standards Surveys and Their Data Sets. *LSMS Working Paper #120.* The World Bank: World Bank Policy Research Department, Poverty and Human Resources Division (updated on March 1, 1996). http://www.worldbank.org/LSMS/guide/instruct.html and http://www.worldbank.org/html/prdph/lsms/guide/guide.pdf

Gulli, Hege (1998) *Microfinance and Poverty: Questioning the Conventional Wisdom* Washington D.C.: Inter-American Development Bank.

Harner, Stephen M. (2003) SME Lending in Cambodia: Why Banks Find it so Difficult? *Private Sector Discussions Number 14*. Phnom Penh: Mekong Project Development Facility, MPDF.

Harper M, (2005) Farm Credit and Microfinance – Is There a Critical Mismatch? *Small Enterprise Development* 16 (1): 58-67.

Hashemi, Syed, Laura Foose and Samer Badawi (2007) Beyond Good Intentions: Measuring the Social Performance of Microfinance Institutions *CGAP Focus Note* No. 41. Washington DC: Consultative Group to Assist the Poor (CGAP).

Hatch John (2004) A Brief Primer on FINCA. www.haas.berkeley.edu/HaasGlobal/docs/hatch_fincaprimer.doc

Hatch, John (2002) *Towards a Cost-Effective System for Measuring the Social Performance of FINCA Programs.* FINCA Concept Paper. FINCA Mimeo.

Hatch, John and Laura Frederick (1998) *Poverty Assessment by Microfinance Institutions: A Review of Current Practices.* Bethesda: Microenterprise Best Practices (MBP) Project, Development Alternatives – USAID.

Hatch, John and Patrick Crompton (2005) Microfinance and Social Performance: How FINCA Used a Client Assessment Tool To Identify Mission Drift. *The Seep Network. Progress Note 11.* http://www.microfinancegateway.com/content/article/detail/30225 www.seepnetwork.org/files/3121_file_Progress_Note_11_Michelle.Jennifer_.pdf

Hatta Kaksekar Ltd (2007) Annual Report 2006 - Financial Statements and Auditors' Report. 31 December 2006.

Helmers, Kent (2003a) *Summary of Main Findings From The Rural Sources of Income and Livelihood Strategy Study*. Draft. Mimeo.

Helmers, Kent (2003b) *An Analysis of Rural Sources of Income and Livelihood Strategies in Cambodia Based on a Review of sub-national Quantitative Studies.* Prepared for the Rural Sector Strategy Note Study. Washington D.C.: World Bank. Mimeo.

Helmers, Kent and Pia Wallgren (2001) *Social Assessment and Design of Poverty Targeting Measures*. Phnom Penh: UNOPS-SEILA.

Helms, Brigit (2004) *Building Inclusive Financial Systems*: *Donor Guidelines on Good Practice Microfinance.* Washington D.C.: World Bank. http://europeandcis.undp.org/files/uploads/PR/Donor%20Guidelines%20on%20Microfinance_Decemeber%202004.pdf

Henninger, Norbert (1998) *Mapping and Geographic Analysis of Human Welfare and Poverty - Review and Assessment*. Washington D.C.: World Resources Institute.

Henry, Carla; Manohar Sharma; Cecile Lapenu; and Manfred Zeller (2003) Microfinance Poverty Assessment Tool. *Technical Tools Series No. 5*. Washington DC: CGAP / World Bank / IFPRI. http://www.cgap.org/portal/binary/com.epicentric.contentmanagement.servlet.ContentDeliveryServlet/Documents/TechnicalTool_05.pdf

Hoff, Karla and Joseph E. Stiglitz (1990) Introduction: Imperfect Information and Rural Credit Markets -Puzzles and Policy Perspectives. *The World Bank Economic Review*.4 (3): 235-250.

Hulme David (1997) *Impact Assessment Methodologies for Microfinance: A review*. Paper prepared with the AIMS Project for the Virtual Meeting of the CGAP Working Group on Impact Assessment Methodologies (April 17-19).

Hulme David (2000) Impact Assessment Methodologies for Microfinance: Theory, Experience and Better Practice. *World Development,* 28 (1): 79-98.

Hulme David and Paul Mosley (1996) *Finance Against Poverty. Vol. 1* London: Routledge.

Hulme, David (2000) Is Micro-debt Good for Poor People? A Note on the Dark Side of Micro-finance, *Small Enterprise Development* 11 (1): 26-28.

Hulme, David and Andrew Shepherd (2003) Conceptualizing Chronic Poverty *World Development* 31 (3): 403-423.

Human Rights Watch (2003) *Don't Bite the Hand that Feeds You: Coercion, Threats, and Vote-Buying in Cambodia's National Election*. A Human Rights Watch Briefing Paper. HRW. http://www.hrw.org/backgrounder/asia/cambodia/elections.pdf

Huppi, Monika and Gershon Feder (1990) The Role of Groups and Credit Cooperatives in Rural Lending. *The World Bank Research Observer* 5 (2): 187-204.

In Channy (2002) *From NGO/Project to Microfinance Institution. The Experience of ACLEDA Bank*. Paper presented as part of the FAO-APRACA Regional Workshop From NGO/Project to MFI, Bangkok, Thailand, February 20-22.

International Labour Organization, ILO (2001) *World Employment Report 2001: Life at Work in the Information Economy.* Geneva: ILO.

International Monetary Fund, IMF (2003) *IMF Country Report 03/59 Cambodia: Selected Issues and Statistical Appendix*. http://www.imf.org/external/pubs/ft/scr/2003/cr0359.pdf

International Monetary Fund, IMF (2006a) Cambodia: Poverty Reduction Strategy Paper. *IMF Country Report No. 06/266.* www.imf.org/external/pubs/ft/scr/2006/cr06266.pdf

International Monetary Fund, IMF (2006b) Cambodia: Poverty Reduction Strategy Paper—*Joint Staff Advisory Note. IMF Country Report No. 06/267.* www.imf.org/external/pubs/ft/scr/2006/cr06267.pdf

International Monetary Fund, IMF (2007a) Cambodia: 2007 Article IV Consultation—Staff Report; Staff Supplement; and Public. *IMF Country Report No. 07/290*. www.imf.org/external/pubs/ft/scr/**2007**/cr07290.pdf

International Monetary Fund, IMF (2007b) Cambodia: Selected Issues and Statistical Appendix. *IMF Country Report No. 07/291*. www.imf.org/external/pubs/ft/scr/2007/cr07291.pdf

IRIS Center website (Department of Economics, University of Maryland) http://www.iris.umd.edu

Islam, Nurul (2006) Rural Nonfarm Microenterprise: Salient Features and Issues, Chapter 2 in Islam *Reducing Rural Poverty in Asia: Challenges and Opportunities for Microenterprises and Public Employment Schemes*. Binghamton, NY: Haworth Press, Inc. http://www.ifpri.org/PUBS/otherpubs/ruralpovasiach02.pdf

Islam, Nurul (1997) *The Non-Farm Sector and Rural Development – Review of Issues and Evidence*. Food, Agriculture and the Environment Discussion Paper 22. Washington DC: International Food Policy Research Institute (IFPRI).

Jacquand, Marc *(2005)* Social Performance: The Wrong Priority. *United Nations Capital Development Fund (UNCDF) Microfinance Matters* (15) / August. http://www.uncdf.org/english/microfinance/pubs/newsletter/pages/2005_08/news_measuring.php

Jain, Pankaj and Mick Moore (2003) What Makes Microcredit Programs Effective? Fashionable Fallacies and Workable Realities. *IDS Working Paper* 177. Brighton: IDS.

Jalilian H, Kirkpatrick C. (2001) Financial Development and Poverty Reduction in Developing Countries. *Finance and Development Working Paper* 30: Manchester: IDPM University of Manchester.

Johnson, D.G. (1950) Resource Allocation Under Share Contracts. *Journal of Political Economy* 58 (2): 111-123.

Joiner, Alex (2006) Cambodia Economic Overview *Economics@ANZ:* – ANZ Investment Bank. Melbourne: ANZ Economic Publications & Research. http://www.anz.com/documents/economics/Cambodia_Economic_Overview.pdf

Kahneman Daniel and Alan B. Krueger (2006) Developments in the Measurement of Subjective Well-Being, *Journal of Economic Perspectives* 20 (1): 3-24.

Kamm, Henry (1998) *Cambodia: Report from a Stricken Land*. New York: Arcade Publishing.

Kanbur, Ravi and Paul Shaffer (2007) Epistemology, Normative Theory and Poverty Analysis: Implications for Q-Squared in Practice, *World Development 35 (2): 183-196*.

Kang Chandararot (2002) The Development of Microfinance in Cambodia. *Cambodia Development Review*. *6- 3, July-September.* CDRI.

Kay Kimsong (2002) "Microfinance Practices Don't Help the Poor, Senators Say" *Cambodia Daily*, Monday May 13, p.14.

Kay Kimsong (2006) "Premier Dubs 2006 "The Year of Microfinance" *Cambodia Daily*, Thursday January 12, p.1.

Kenefick, Eric (1998) *Report on the Cambodian 1998 Joint UNICEF-WFP Baseline Survey of CASD Project & WFP Target Area.* Phnom Penh: UNICEF & WFP.

Kenefick, Eric (2000) *UNICEF Follow-up Survey of Households in CASD Villages, May-June 2000*. Phnom Penh: UNICEF.

Khlok, Bottra; Olga Torres; Samnang Dith; and Rottanak Ly (2007) *AMK Client Households Profile 2007*. Phnom Penh: AMK.

Kim Vada (2002) *Evolution of Rural Finance in Cambodia* National Bank of Cambodia. Mimeo.

Kochar, Anjini (2002) Explaining Poverty: An Empirical Analysis of the Effects of Ill Health and Uncertainty on the Savings of Rural Pakistani Households, pp. 266- 294 in Zeller and Meyer (eds.) *The Triangle of Microfinance: Financial Sustainability, Outreach, and Impact*. Baltimore, Maryland: The Johns Hopkins University Press/IFPRI.

Kolm, S.C. (1977) Multidimensional egalitarianisms, *Quart. J. Econom*. 91, 1–13.

Krueger, Alan B. and David A. Schkade (2007) The Reliability of Subjective Well-Being Measures, *IZA Discussion Papers 2724*, Institute for the Study of Labor (IZA). http://ideas.repec.org/p/iza/izadps/dp2724.html

Lapenu, Cécile and Manfred Zeller (2003) *Social Performance Indicators Initiative (SPI) Report No. 1*: Towards defining social performance of microfinance institutions - Literature review and synthesis.

Ledgerwood, Joanna (1999) *Microfinance Handbook : An Institutional and Financial Perspective*. Washington, D.C.: World Bank.

Leland, John (2007) "Nonprofit Payday Loans? Yes, to Mixed Reviews" *New York Times*. August 28, 2007. http://www.nytimes.com/2007/08/28/us/28payday.html?pagewanted=1&ei=5070&en=2c9467d63241b04d&ex=1188964800&emc=eta1

Levine, Ross (1997) Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature* 35 (2): 688-726.

Levine, Ross, N. Loayza and T. Beck (2000) Financial Intermediation and Growth: Causality and Causes. *Journal of Monetary Economics* 46: 31-77.

Lewis W A. (1995) *The Theory of Economic Growth.* London: George Allen and Unwin.

Lim, Sovannara (2007) Chapter 4: The Characteristics and Situation of the Poor: Tangible and Intangible Assets, pp. 71-103 in Ballard, ed. '*We Are Living with Worry All the Time': A Participatory Poverty Assessment of the Tonle Sap*. Phnom Penh: Cambodia Development Resource Institute, CDRI.

Lokshin, M., Umapathi, N. and S. Paternostro (2004) Robustness of Subjective Welfare Analysis in a Poor Developing Country: Madagascar 2001, *World Bank Policy Research Working Paper*, Washington, D.C.: World Bank.

Maasoumi, E. (1986) The Measurement and Decomposition of Multidimensional Inequality, *Econometrica* 54, 771–779.

Madajewicz Malgosia (2003) *Does the Credit Contract Matter? The Impact of Lending Programs on Poverty in Bangladesh*. Columbia University. http://72.14.235.104/search?q=cache:y6mNYhESIiAJ:www.iue.it/FinConsEU/Papers2004/Madajewicz.pdf+Capital+for+the+Poor:+The+Effect+of+Wealth+on+the+Optimal+Credit+Contract&hl=en&ct=clnk&cd=2

Madajewicz, Malgosia (1998) *Capital for the Poor: The Effect of Wealth on the Optimal Loan Contract and the Implications for Growth* Dissertation – Essays on Credit Markets in Developing Countries. Ph.D. Harvard University.

Madajewicz, Malgosia (2000) *Capital for the Poor: The Effect of Wealth on the Optimal Credit Contract.* Colombia University. Mimeo.

Mas-Colell, Andrew, Michael D. Whinston and Jerry R. Green (1995) *Microeconomic Theory* New York: Oxford University Press.

Matin Imran (2005) The Very Poor Who Participate in Microfinance and Those Who Never Have. *Small Enterprise Development Journal* 16(3): 51-57.

Matin, Imran and David Hulme (2003) Programmes for the Poorest: Learning from the IGVGD in Bangladesh. *World Development*, 31(3): 647-665.

Matin, Imran, David Hulme and Stuart Rutherford (1999) Financial Services for the Poor and Poorest: Deepening Understanding to Improve Provision. *Finance and Development Research Programme Working Paper No. 9.* Manchester: Institute for Development Policy and Management, University of Manchester. http://www.microfinancegateway.org/files/1689_1689.pdf

Matin, Imran, David Hulme and Stuart Rutherford (2002) Finance for the Poor: From Microcredit to Microfinancial Services. *Journal of International Development* 14 (2): 273-94.

Maxwell, Simon (1999) The Meaning and Measurement of Poverty, Overseas Development Institute. *Poverty Briefings*, London: ODI.

Maxwell, Simon (2001): WDR 2000: Is There a New "New Poverty Agenda"? Attacking Poverty: World Development Report 2000/2001. *Development Policy Review*, 19 (1): 143-149.

Mayoux, Linda (2001), *Participatory Methods*. Manchester: EDIAIS. http://www.ids.ac.uk/impact/resources/tools/mayoux_ParticMethods.doc

Mayoux, Linda (2003) *Diagram Tools for Individual and / or Participatory Poverty Assessments*. Paper prepared for The IRIS Center. College Park, MD: IRIS.

McKenney, Bruce and Prom Tola (2002) Natural Resources and Rural Livelihoods in Cambodia: A Baseline Assessment. *Cambodian Development Resource Institute (CDRI) Working Paper 23*, Phnom Penh: CDRI.

MEDiCAM / NGO Forum on Cambodia / CCC. (2000) *NGO Statement to the 2000 Consultative Group Meeting on Cambodia*. Phnom Penh.

Mekong Private Sector Development Facility, MPDF (2003) Why are Cambodian Banks Reluctant to Lend to SMEs? *Cambodia Development Review 7- 3, July-September*. Phnom Penh: CDRI.

Mekong Private Sector Development Facility, MPDF (2005) Making Microfinance Work for the Poor: Key Principles. *Cambodia Business Issues Bulletin 8.* Phnom Penh: MPDF/IFC. http://www.ifc.org/ifcext/mekongpsdf.nsf/AttachmentsByTitle/BIB-8-CAM-ENG/$FILE/BIB-8-CAM-ENG.pdf

Menno Pradhan and Martin Ravallion (1998) Measuring Poverty Using Qualitative Perceptions of Welfare *Policy, Research Working Paper 2011*. http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2000/02/24/000094946_99031911105434/additional/125525322_20041117140554.pdf

Meyer, Richard and Manfred Zeller (2002) Summary and Implications for Policy and Research, pp. 361-377 in Zeller and Meyer (eds.) *The Triangle of Microfinance: Financial Sustainability, Outreach, and Impact*. Baltimore, Maryland: The Johns Hopkins University Press/IFPRI.

Meyer, Richard L and Geetha Nagarajan (2000*) Rural Financial Markets in Asia: Policies, Paradigms and Performance*. New York: Oxford University Press.

MicroBanking Bulletin (MBB) Issue No.14. Spring 2007.

MicroBanking Bulletin website: www.mix**mbb**.org

Microfinance Information eXchange (2007) *Performance Trends: Cambodia Trends 2003-2007*– Prepared for Presentations at the Microcredit Summit: Reaching New Heights (November 2007). Phnom Penh.

Ministry of Planning and United Nations Development Programme, UNDP (2007) Expanding Choices for Rural People: Cambodia Human Development Report 2007.

Ministry of Planning/Royal Government of Cambodia/United Nations World Food Program (2003) *Poverty and Vulnerability Analysis Mapping in Cambodia: Mapping Poverty, Malnutrition, Educational Need and Vulnerability to Natural Disasters in Cambodia. Summary Report.* Phnom Penh: MoP/RGC/WFP/ Italian Cooperation/IFAD.

Ministry of Planning/United Nations World Food Program (2002) *Estimation of Poverty Rates at Commune-Level in Cambodia: Using Small-Area Estimation Technique to Obtain Reliable Estimates.* Phnom Penh: Ministry of Planning/ World Food Program.

Moisio, Pasi (2004) A Latent Class Application to the Multidimensional Measurement of Poverty. *Quality & Quantity*, 38: 703-17.

Morduch, Jonathan (1994) Poverty and Vulnerability. *American Economic Review* 84 (2): 221-25. http://ideas.repec.org/a/aea/aecrev/v84y1994i2p221-25.html

Morduch, Jonathan (1998) Does Microfinance Really Help the Poor? New Evidence from Flagship Programs in Bangladesh [First complete draft: 2/26/98]. http://econpapers.repec.org/scripts/redir.pl?u=http%3A%2F%2Fwww.princeton.edu%2F%257Erpds%2Fdownloads%2Fmorduch_microfinance_poor.pdf;h=repec:pri:rpdevs:198

Morduch, Jonathan (1999a) The Role of Subsidies in Microfinance: Evidence from the Grameen Bank. *The Journal of Development Economics* 60: 229-248.

Morduch, Jonathan (1999b) The Microfinance Promise. *Journal of Economic Literature,* 37 (4): 1569-1614.

Morduch, Jonathan (2000) The Microfinance Schism. *World Development*, 28 (4): 617-629. [Read the Version January 1998; First Draft April 1997].

Morduch, Jonathan and Barbara Haley (2002) *Analysis of the Effects of Microfinance on Poverty Reduction: Overview*. New York, USA: Robert F. Wagner Graduate School of Public Service. http://www.results-resultats.ca/resources/research/review-overview5-en.pdf

Morduch, Jonathan and Manohar Sharma (2002) Strengthening Public Safety Nets from the Bottom Up. *Social Protection Discussion Paper 0227*. Washington, D.C.: World Bank. [Also in *Development Policy Review*, 20: 569-588]

Morris, Morris D. (1979) *Measuring the Condition of the World's Poor: The Physical Quality of Life Index*. New York: Overseas Development Council.

Moser, Caroline O.N. (1998) The Asset Vulnerability Framework: Reassessing Urban Poverty Reduction Strategies. *World Development,* 26 (1): 1-19.

Muhammad Yunus (1999) *Banker to the Poor: Microlending and the Battle Against World Poverty*, Public Affairs.

Murshid K.A.S. (2007) Chapter 8: Credit and Rural Livelihoods, pp. 219-244 in Ballard, ed. '*We Are Living with Worry All the Time': A Participatory Poverty Assessment of the Tonle Sap*. Phnom Penh: Cambodia Development Resource Institute, CDRI.

Murshid K.A.S. and Runsinarith Phim (2007) Chapter 2: A Review of Poverty and Vulnerability in Cambodia (With Special Reference to the Tonle Sap Region), pp. 21-47 in Ballard, ed. '*We Are Living with Worry All the Time': A Participatory Poverty Assessment of the Tonle Sap*. Phnom Penh: Cambodia Development Resource Institute, CDRI.

Narayan, Deepa and Patti Petesch (2002) *Voices of the Poor: From Many Lands*. New York, N.Y: Oxford University Press.

Narayan, Deepa with Raj Patel; Kai Schafft; Anne Rademacher; and Sarah Koch-Schulte (2000a). *Voices of the Poor: Can Anyone Hear Us*? New York, N.Y.: Oxford University Press.

Narayan, Deepa, Robert Chambers, Meera Kaul Shah and Patti Petesch (1999) *Global Synthesis. Prepared for the Global Synthesis Workshop: Consultations with the Poor*, Washington, D.C.: World Bank. http://www1.worldbank.org/prem/poverty/voices/synthes.pdf

Narayan, Deepa; Robert Chambers; Meera Kaul Shah; and Patti Petesch (2000b) *Voices of the Poor: Crying Out for Change*. New York, N.Y: Oxford University Press.

National Bank of Cambodia (2006) *Micro Finance of Cambodia.* Phnom Penh.

National Bank of Cambodia (2006b) *Annual Report 2005, Banking Supervision Department.* Phnom Penh.

National Bank of Cambodia (2007a) *Annual Report 2006, Banking Supervision Department.* Phnom Penh.

National Bank of Cambodia (2007b) *National Bank of Cambodia Review No 20, 2nd Quarter 2007.* Phnom Penh.

National Bank of Cambodia (2007c) NBC Report to the Microfinance Summit 2007: Reaching New Heights. Phnom Penh, November 29.

Navajas, Sergio; Alvaro Tarazona Soria; Carolina Trivelli; and Mark D. Wenner (2007) *Managing Credit Risk in Rural Financial Institutions in Latin America*. MSM-139. Washington DC: Inter-American Development Bank (IADB).

Navajas, Sergio, Jonathan Conning and Claudio Gonzalez-Vega (2003) Lending Technologies, Competition and Consolidation in the Market for Microfinance in Bolivia. *Journal of International Development* 15, 747-770.

Navajas, Sergio; Mark Schreiner; Ricard L. Meyer; Claudio Gonzalez-Vega; and Jorge Rodríguez-Meza (2002) Microcredit and the Poorest of the Poor; Theory and Evidence from Bolivia, *World Development*, 28 (2): 333-346. [Also in Zeller and Meyer (eds.) (2002)].

Nayar, Nina and Johann-Friedrich Ramm (2002) *Challenges of Transformation for (smaller) NGOs/Projects* Development of sustainable microfinance in Cambodia: Lessons learned from GTZ-supported initiatives. GTZ Workshop at the Institute of Public Health. Phnom Penh, 6-7 March. Mimeo.

NGO Forum on Cambodia (2002a) *A Compilation of NGO and Civil Society Comments on the Second Draft of Cambodia's National Poverty Reduction Strategy Paper*. Phnom Penh Mimeo (Dec).

NGO Forum on Cambodia (2002b) *Cambodia's draft Poverty Reduction Strategy Paper – Has NGO Input Been Included?* Phnom Penh Mimeo (Sept).

NGO Forum on Cambodia (2007a) *NGO Position Papers on Cambodia's Development in 2006 Monitoring of Joint Monitoring Indicators and Implementation of the National Strategic Development Plan*. Phnom Penh (June).

NGO Forum on Cambodia (2007b) *NGO Statement to the 2007 Cambodia Development Cooperation Forum Meeting.* Phnom Penh (June).

Norton. Andy, Bella Bird, Karen Brock, Margaret Kakande and Carrie Turk (2001) *A Rough Guide to PPAS. Participatory Poverty Assessment. An Introduction to Theory and Practice.* London: Overseas Development Institute (ODI).

O'Driscoll, G.P. Jr., E. Feulner, and M.A O'Grady (2002) *The 2003 Index of Economic Freedom* Washington DC: The Heritage Foundation and Dow Jones & Company, Inc. http://cf.heritage.org/index/country.cfm?ID=24.0

Oberdorf, C. ed. (1999) *Microfinance: Conversations With the Experts*. Washington, DC: CALMEADOW & ACCION International.

Ortiz, Isabel (2007) *Putting Financing for Development in Perspective: The South Finances the North* International Development Economics Associates (IDEAs). http://www.ideaswebsite.org/news/nov2007/news22_Putting_Financing.htm

Osborne, Milton (2000) *The Mekong. Turbulent Past, Uncertain Future*. New York: Atlantic Monthly Press.

Osborne, Milton (2002) *Exploring Southeast Asia: a Traveler's History to the Region*. Crows Nest, Australia: Allen and Unwin.

Parker, Joan and Doug Pearce (2001) Microfinance, Grants, and Non-financial Responses to Poverty Reduction: Where Does Microcredit Fit?' *CGAP Focus Note* No. 20. Washington D.C.: CGAP. http://nt1.ids.ac.uk/cgi-bin/dbtcgi.exe?RNO=1689&$TEXTBASE_PATH=d:\InetPub\wwwroot\data\&$TEXTBASE_NAME=cgapdum&$MAXRECS=10&$NOREPORT=0&$NODISPLAY=0&$REPORT_FORM=full+display

Paxson, C.H. (1992) Using Wheather Variability to Estimate the Response of Savings to Transitory Income in Thailand. *American Economic Review* 82 (1): 15-33.

Paxton, Julia (1996) *A Worldwide Inventory of Microfinance Institutions*. Word Bank, Sustainable Banking with the Poor Project, Washington, D.C.: World Bank.

Pothy, Pich Francesca Guarascio, Jonh Curry and Ricardo Sibrian (2007) *A gender analysis of Food Security Statistics by Specific Population Groups in the Cambodian 2003/05 CSES*. Presented at the 4th International Conference on Agriculture Statistics (Side event: Food Security Statistics and Information for Targeting Poor and Hungry Populations at Sub-national Levels), October 07, Beijing. Food and Agriculture Organization of the United Nations (FAO).

PRASAC MFI Ltd (2007) Annual Report 2006 - Financial Statements and Auditors' Report. 31 December 2006.

PricewaterhouseCoopers (2003) *Cambodia Pocket Tax Book*. Phnom Penh: PwC (Cambodia) Ltd.

Quiñones, Benjamin R. Jr and Hans Dieter Seibel (2001) Social Capital in Microfinance: Case Studies in the Philippines, pp. 195-207 in John D. Montgomery & Alex Inkeles, eds. *Social Capital as a Policy Resource*, The Netherlands: Kluwer Academic Publishers.

Ramamurthy, Bhargavi, Sik Boreak, Per Ronnås and Sok Hach (2001) Cambodia 1999-2000: Land, Labour and Rural Livelihood in Focus. *Cambodia Development Resource Institute (CDRI) Working Paper 21*. Phnom Penh: CDRI.

Ravallion, Martin (1992) Poverty Comparisons, A Guide to Concepts and Methods, *Living Standards Measurement Study, Working Paper 88*, Washington D.C.: World Bank. http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2000/04/28/000178830_98101902174198/Rendered/PDF/multi_page.pdf

Ravallion, Martin (1998) Poverty Lines in Theory and Practice, *Living Standards Measurement Study Working Paper 133*, Washington D.C.: World Bank. http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2000/02/24/000094946_99031911030079/Rendered/PDF/multi_page.pdf

Ravallion, Martin and Michael Lokshin (1999) Subjective Economic Welfare, *World Bank Policy Research Working Paper No. 2106*. Washington D.C.: World Bank.

Reddy, S. and T. W. Pogge (2002) *How Not To Count the Poor*. www.socialanalysis.org

Reille, Xavier, A. Vega and S. Mamier (2002) *CGAP Appraisal Report EMT (Ennatien Moulethan Tchonnebat),* Phnom Penh: CGAP. http://www.emt.com.kh/pdf/CGAP.pdf

Reille, Xavier, and Sarah Forster (2008) Foreign Capital Investment in Microfinance: Balancing Social and Financial Returns. *Focus Note 44*. Washington, D.C.: CGAP. http://www.cgap.org/portal/binary/com.epicentric.contentmanagement.servlet.ContentDeliveryServlet/Documents/FocusNote_44.pdf

Rhyne, E. (1998) The Yin and Yang of Microfinance: Reaching the Poor and Sustainability, *Microbanking Bulletin* 2: 6-8.

Robinson, Marguerite (2001) The *Microfinance Revolution: Sustainable Finance for the Poor*. Vol 1&2. Washington D.C.: The World Bank.

Rosenberg, Richard (1996) Microcredit Interest Rates. *CGAP Occasional Paper* No. 1. Washington DC: CGAP.

Rosengard Jay K.; Ashok S. Rai; Aleke Dondo; and Henry O. Oketch (2000) Microfinance Development in Kenya: K-Rep's Transition From NGO to Diversified Holding Company and Commercial Bank *Development Discussion Paper No. 762* Harvard Institute for International Development, Harvard University. http://www.hiid.harvard.edu/pub/pdfs/762.pdf

Roth, James (1997) *The Limits of Microcredit as a Rural Development Intervention*. Dissertation submitted to the University of Manchester for the MA (Econ) in the Faculty of Economic and

Social Studies in 1996. Paper prepared for the Institute for Development Policy and Management. Mimeo. http://www.gdrc.org/icm/jimmy-roth.pdf

Royal Government of Cambodia, RGC - Ministry of Commerce, MoC (2001) *Rice Study - Post Harvesting and Marketing – JICA.* *http://www.moc.gov.kh/sectoral/rice_study*

Royal Government of Cambodia, RGC - Ministry of Health, MoH. (2007) *Press Release: Government announces official HIV prevalence rate* June 28, 2007. http://www.nchads.org/pressrelease/28-06-07%20en.pdf

Royal Government of Cambodia, RGC - Ministry of Planning, MoP (2001) *Participatory Poverty Assessment Dissemination Workshop*, January 23. Phnom Penh: RGC.

Royal Government of Cambodia, RGC - Ministry of Planning, MoP (2002) *Cambodia Human Development Report, Societal Aspects of the HIV/AIDS Epidemic in Cambodia Progress Report 2001*. Phnom Penh: RGC.

Royal Government of Cambodia, RGC - Ministry of Planning, MoP (2006) *A Poverty Profile of Cambodia 2004*. Phnom Penh: RGC.

Royal Government of Cambodia, RGC - Ministry of Planning, MoP (2005). Achieving the Cambodia Millennium Development Goals 2005. Phnom Penh: RGC.

Royal Government of Cambodia, RGC (2007) *Financial Sector Development Strategy 2006-2015*. Phnom Penh: RGC.

Rural Development Bank, RDB (2007) Annual Report 2006.

Rutherford, Stuart (1999) *Use and Impact of Savings Services Among the Poor in East Africa*, UNDP-UNCDF (Other researchers included: Leonard Mutesasira, Henry Sampangi, Harry Mugwanga, John Kashangaki, Florence Maximambali, Christopher Lwoga, David Hulme, Graham Wright). http://www.undp.org/sum/MicroSave/ftp_downloads/UseEA.pdf

Rutherford, Stuart (2000a) *The Poor and their Money: an essay about financial services for poor people.* New Delhi: Oxford University Press. (Earlier) online version: www.undp.org/sum/MicroSave/ftp_downloads/rutherford.pdf

Rutherford, Stuart (2000b) Raising the curtain on the 'microfinancial services era' *CGAP Focus Note No.15*. Washington, DC, USA: CGAP.

Sajeda Amin, Ashok S. Rai and Giorgio Topa (2003) Does Microcredit Reach the Poor and Vulnerable? Evidence from Northern Bangladesh. *Journal of Development Economics,* 70 (1): 59-82.

Schreiner, Mark (2002a) Aspects of Outreach: A Framework for Discussion of the Social Benefits of Microfinance. *Journal of International Development,* 14: 591-603.

Schreiner, Mark (2002b) Scoring: The Next Breakthrough in Microcredit? *CGAP Occasional Paper No. 7*. Washington, DC: CGAP. www.microfinance.com/English/Papers/Scoring_Breakthrough.pdf

Schreiner, Mark (2006) *Seven Extremely Simple Poverty Scorecards*. Washington, D.C.: CGAP. www.microfinance.com/#Poverty_Scoring

Sebstad, Jennefer and Monique Cohen *The World Development Report 2000/2001 Background Paper*.

SEEP Network (2007) Social Performance Progress Brief. *Social Performance Briefing Series, 1 (3).* Washington, DC: The Small Enterprise Education and Promotion (SEEP) Network and Argidius Foundation. www.seepnetwork.org/files/4658_file_SEEP_ProgBrief1.pdf

SEEP Network, Social Performance Working Group (2006) Conceptual Note on Social Performance. Washington, DC: The Small Enterprise Education and Promotion (SEEP) Network. www.seepnetwork.org/files/4657_file_Conceptual_Note_on_Social_Performance.pdf

Sharma, Manohar and Gertrud Buchenrieder (2002) Impact of Microfinance on Food Security and Poverty Alleviation: A Review and Synthesis if Empirical Evidence, pp. 221- 240 in Zeller and Meyer (eds.) *The Triangle of Microfinance: Financial Sustainability, Outreach, and Impact*. Baltimore, Maryland: The Johns Hopkins University Press/IFPRI.

Sharma, Manohar and Manfred Zeller (1999) Placement and Outreach of Group-based Credit Organizations: The Cases of ASA, BRAC, and PROSHIKA in Bangladesh. *World Development*, *27 (12): 2123-2136.*

Sharma, Manohar; Manfred Zeller; Carla Henry; Cecile Lapenu; and Brigit Helms (2000) *Assessing the relative poverty level of MFI clients: Synthesis report based on four case studies*. Washington D.C.: International Food Policy Research Institute, IFPRI for the Consultative Group to Assist the Poor,CGAP.

Shawcross, William (1991) *Sideshow: Kissinger, Nixon and the Destruction of a Nation*, London: Hogarth Press.

Sillers Don (2004) *National and International Poverty Lines: An Overview*. Washington, D.C.: USAID/EGAT/PR. http://www.povertytools.org/documents/Poverty%20lines%20-%20An%20Overview%201_23_04.doc

Simanowitz, Anton Ben Nkuna and Sukor Kasim (2000) *Overcoming the Obstacles of Identifying the Poorest Families: Using Participatory Wealth Ranking (PWR), The CASHPOR House Index (CHI), and Other Measurements to Identify and Encourage the Participation of the Poorest Families, Especially the Women of Those Families*. Paper presented in the Microcredit Summit Meeting of Councils in Abidjan, Cote d'Ivoire June 1999 and updated June 2000 for the Microcredit Summit Campaign regional meeting in Africa, Asia and Latin America. http://www.microcreditsummit.org/papers/povertypaperH.html

Sinha, Frances (2006) *Social Rating and Social Performance Reporting in Microfinance: Towards a Common Framework*. Washington, DC, USA: EDA/M-Cril, Argidius, and the SEEP Network.

Sinha, Frances, Meenal Patole and the EDA Rural Systems Impact Assessment Team (2003) *Poverty Assessment - Combining Multiple Dimensions of Poverty with a 'Standard' Poverty Lines / Understanding and Assessing Poverty: Multi-Dimensional Assessment versus 'Standard'*

Poverty Lines (Based on a National Level Impact Study of Microfinance in India). Paper contributed to the EDIAIS conference New Directions In Impact Assessment For Development: Methods And Practice University of Manchester, UK 24 – 25 November. www.enterprise-impact.org.uk/pdf/Sinha.pdf

Son Koun Thor (2002) *The Effects of Trade Liberalisation on Rural Financial Institutions*. Paper presented in APRACA, Bangkok, Thailand, May 20-24, 2002.

Sophal Ear (2005) Governance and Economic Performance: Credibility, Political Will and Reform. *Cambodian Economic Review* Vol. 1 (1): 17-52. Phnom Penh: Economic Institute of Cambodian EIC.

Sophal, Chan and Sarthi Acharya (2002) Facing the Challenge of Rural Livelihoods: A Perspective from Nine Villages in Cambodia *Cambodia Development Resource Institute (CDRI) Working Paper* 25. Phnom Penh: CDRI.

Stiglitz, Joseph E. (1974) Incentives and Risk Sharing in Sharecropping *The Economic Review of Economic Studies*, 41 (2): 219-255.

Stiglitz, Joseph E. (1990) Peer Monitoring and Credit Markets. *The World Bank Economic Review,* 4 (3): 351-366.

Stiglitz, Joseph E. and Andrew Weiss (1981) Credit Rationing in Markets with Imperfect Information. *The American Economic Review,* 71 (3): 393-410.

Sumner, Andrew, (2007) Meaning versus Measurement: Why Do 'Economic' Indicators of Poverty Still Predominate?, *Development in Practice*, 17(1): 4-13. http://dx.doi.org/10.1080/09614520601092485

Thanakea Phum (Cambodia) Ltd, TPC (2007) Annual Report 2006 - Financial Statements and Auditors' Report. 31 December 2006.

The Economist Intelligence Unit, *Country Report Cambodia May 2002*. http://store.eiu.com/index.asp?layout=show_sample&product_id=50000205&country_id=KH

Thion, Serge (1993) *Watching Cambodia. Ten Paths to Enter the Cambodian Tangle*. Bangkok, Thailand: White Lotus.

Tola, Prom and Bruce McKenney (2003) Forest Product Trade in Cambodia: A Case Study of Resin *Cambodia Development Review*. 7- *2, April-June.* Phnom Penh: CDRI.

Torres, Olga (2002) *TPT Research and Training Needs: A Desk Review of Research Undertaken to Date*. Mimeo.

Torres, Olga (2003) *Does Microfinance Reach the Poor? A Case Study: Concern Cambodia's Thanakea Ponleu Thmey (TPT) Program*. Trabajo de Investigación de Segundo Año de Doctorado. Presentado en Mayo del 2003 al Departamento de Economía Aplicada I: Economía Internacional y Desarrollo, Facultad de Ciencias Económicas y Empresariales,

Universidad Complutense. Mimeo. [Manuscript presented for the "Diploma de Estudios Avanzados" (DEA) at Universidad Complutense, Madrid, Spain in May 2003]

Torres, Olga (2004) *Rural Finance and the Microfinance Sector in Cambodia*. Paper prepared for the Rural Sector Strategy Note (RSSN) of the World Bank. Rural Development and Natural Resources East Asia and Pacific Region. Washington D.C.: World Bank.

Torres, Olga, Tanmay Chetan and Frances Sinha (2007) *AMK Case Study.* Imp-Act Consortium. Brighton: Institute of Development Studies, IDS. Forthcoming.

Tsui, Kai-Yuen (1995), Multidimensional Generalizations of the Relative and Absolute Indices: the Atkinson–Kolm–Sen Approach, J. *Econom. Theory* 67, 251-265.

Tsui, Kai-Yuen (1999) Multidimensional Inequality and Multidimensional Generalized Entropy Measures: An Axiomatic Approach. *Social Choice and Welfare*, 16, 145-158.

Tsui, Kai-Yuen (2002) Multidimensional Poverty Indices. *Social Choice and Welfare*, 19, 69-93.

Uniconsult International Limited (1999) Dhaka *Draft Final Report for the Rural Credit and Savings Project.* Phnom Penh: Asian Development Bank and National Bank of Cambodia.

United Nations Children's Fund, UNICEF (2002) *The State of the World's Children 2002*. www.unicef.org/sowc01/toc.htm

United Nations Children's Fund, UNICEF Website on Cambodia. http://www.unicef.org/infobycountry/cambodia_statistics.html

United Nations Conference on Trade and Development, UNCTAC (2007) *The Least Developed Countries Report 2007*. Geneva: UNCTAD secretariat.

United Nations Conference on Trade and Development, UNCTAD (2006) *Statistical Profiles of the Least Developed Countries 2005.* Geneva: UNCTAD.

United Nations Development Programme, UNDP (2006) *Human Development Report: Beyond scarcity: Power, poverty and the global water crisis.*

United Nations Development Programme, UNDP website. www.un.org.kh/undp/index.asp?page=cambodia/numbers.asp and www.undp.org/mdg

United Nations Development Programme, UNDP, Cambodia Annual Report 2001. www.un.org.kh/UNDP/publications/report_2001.pdf

United Nations Development Programme, UNDP, *Global Human Development Reports* (1997, 2000, 2001, 2002, 2007/08). http://hdr.undp.org and http://hdr.undp.org/mdg/statistics.cfm; http://hdr.undp.org/reports/global/2002/en/indicator/indicator.cfm?File=cty_f_KHM.html; http://hdrstats.undp.org/countries/data_sheets/cty_ds_KHM.html and http://78.136.31.142/en/reports/global/hdr2007-2008/

United Nations Population Fund, UNFPA (2001), *The State of the World Population 2001*. http://hdr.undp.org/mdg/statistics.cfm

United Nations Population Fund, UNFPA (2005), *Population, Gender and Reproductive Heath: Cambodia at a Glance*. Phnom Penh: UNFPA.

Urashima, Cheryl (2000) *Learning from Integrated Savings and Credit Programmes in Cambodia: Micro-Finance in Cambodia: A Review of the Literature.* Phnom Penh: Australian Catholic Relief, Church World Service, Oxfam Great Britain.

USAID's Accelerated Microenterprise Advancement Project (AMAP) - Poverty Assessment Tools (PAT) website www.povertytools.org

Valenzuela, Liza and Robin Young (1999) Consultation on Regulation and Supervision of Microfinance: A Workshop Report *Microenterprise Best Practice Project (MIP) USAID*. http://www.mip.org/pdfs/mbp/consultation_on_regulation_and_supervision.pdf

Van de Ruit, Catherine and Julian May (2003) Triangulating Qualitative and Quantitative Approaches to the Measurement of Poverty: A Case Study in Limpopo Province, South Africa. *IDS Bulletin*, 34 (4): 21-33. Brighton: Institute of Development Studies, IDS.

Van Greuning, Hennie, Joselito Gallardo and Bikki Randhawa (1999) A Framework for Regulating Microfinance Institutions. *Policy Research Working Paper 2001*. Washington D.C.: The World Bank.

Varian, Hal R. (1990) Monitoring Agents With Other Agents. *Journal of Institutional and Theoretical Economics*, 146: 153-174.

VisionFund (Cambodia) Ltd (2007) Annual Report 2006 - Financial Statements and Auditors' Report. 31 December 2006.

Vogel, Robert C (1984) The Effect of Subsidized Agricultural Credit on Income Distribution in Costa Rica in Adams Dale W et al (eds.) *Undermining Rural Development with Cheap Credit*. Boulder: Westview Press.

Vogel, Robert C. and Dale W. Adams (1997) Old and New Paradigms in Development Finance: Should Directed Credit Be Resurrected? *Consulting Assistance on Economic Reform (CAER) II Discussion* Paper No. 2 Cambridge: Harvard Institute for International Development.

Waglé Udaya R., *Multidimensional Poverty: An Alternative Measurement Approach for the United States?* SocialScienceResearch. Kalamazoo, Michigan: School of Public Affairs and Administration. Forthcoming http://homepages.wmich.edu/~uwagle/multidimensionalUS.pdf

Wallgren, Pia (2003) *Analysis of Rural Sources of Income and Livelihood Strategies. Phase Two Draft Report - Qualitative Materials.* Prepared for the Rural Sector Strategy Note Study. Washington, D.C.: World Bank Mimeo.

Wallis, W.A and H.V. Roberts (1956) *The Nature of Statistics*. New York: The Free Press.

Walter, Alice (2001) *Learning from Integrated Savings and Credit Programmes in Cambodia: Field Research*. Phnom Penh: Australian Catholic Relief, Church World Service, Oxfam Great Britain. Mimeo.

Wampfler, Betty, Isabelle Guérin and Jean Michel Servet (2006) The Role of Research in Microfinance. *European Dialogue 36*. FAO, Ford Foundation and IFAD: Background Reading: International Conference on Rural Finance Research: Moving Results into Policies and Practice, 19-21 March. http://www.ruralfinance.org/servlet/BinaryDownloaderServlet/47177_Article.pdf?filename=1173997108930_role_of_research.pdf&refID=47177

Ward, Vanessa (2005) Information Asymmetries — Do We Have Any Good Data on Microfinance? *United Nations Capital Development Fund (UNCDF): Microfinance Matters: Issue 15* / August. http://www.uncdf.org/english/microfinance/pubs/newsletter/pages/2005_08/editor.php

Wasson, Eric (2005) "NGO Survey Details Ongoing Rural Poverty" *The Cambodia Daily.* November 29, p.16.

Welch, Karen Horn (2002) ACCION Poverty Assessment Framework. *InSight* No. 1. Boston, MA: ACCION.

Welch, Karen Horn and Patricia Lee Devaney (2003) Poverty Outreach Findings: Mibanco, Peru. *InSight* No. 5. Boston, MA: ACCION.

Westley G D (2001) Can Financial Markets Policies Reduce Income Inequality? *Technical Papers Series*. Washington DC: Inter-American Development Bank.

Whelan, Christopher, Richard Layte, and Bertrand Maitre (2002) Multiple Deprivation and Persistent Poverty in the European Union. *Journal of European Social Policy*, 12(2): 91-105.

Williams, Alison, Uch Vantha and Soeng Vouch Ngim (2001) *Post Conflict Microfinance in Cambodia. Report Based on Qualitative Research.* Durham, UK: Springfield Center for Business in Development.

Wilson, Tamsin (2001) *Microfinance During and After Armed Conflict: Lessons from Angola, Cambodia, Mozambique and Rwanda*. Durham, UK: Springfield Center for Business in Development.

Woller, Gary (2002) From Market Failure to Marketing Failure: Market Orientation as the Key to Deep Outreach in Microfinance, *Journal of International Development* 14, 305-324.

Woller, Gary (2005) Proposal for a Social Performance Measurement Framework in Microfinance: The Six Aspects of Outreach USAID-AMAP microREPORT #26. http://www.microfinancegateway.com/redirect.php?mode=link&id=31177

Woller, Gary M., Christopher Dunford and Warner Woodworth (2001) Where to Microfinance?, pp. 279-304 in Douglas R. Snow, Terry Buss, and Gary Woller (eds.) *Microcredit and Development Policy.* Huntington: Nova Science Publishers.

World Bank Institute, WBI (2001a) *Microfinance for Non-specialists Distance Learning Course: Policy Primer in Microfinance: What Have We Learned*? (October). http://www1.worldbank.org/finance/html/micro_primer.html

World Bank Institute, WBI (2001b) *Policy Primer in Microfinance: A Microfinance Course for Non-specialists (Distance Learning*) (November –December). http://www.worldbank.org/wbi/banking/eastasiamicro/

World Bank Institute, WBI (2005) *Introduction to Poverty Analysis*. Washington, D.C.: World Bank. http://siteresources.worldbank.org/PGLP/Resources/PovertyManual.pdf)

World Bank Institute, WBI (2005) *Poverty Measures and Inequality Measures, Modules 4 and 5 of WBI's Basic Poverty Measurement and Diagnostics course, review poverty and inequality indicators*. Washington, D.C.: World Bank. http://www.worldbank.org/wbi/povertyanalysis/courses/basic_course_1/Module%204%20-%20Measuring%20-%20Poverty%20Measures%20-%20English_files/frame.htm and http://www.worldbank.org/wbi/povertyanalysis/courses/basic_course_1/Module%205%20-%20Measuring%20-%20Inequality%20Measures%20-%20English_files/frame.htm

World Bank website www.worldbank.org and LSMS section www.worldbank.org/LSMS/

World Bank, WB (2001) *Finance for Growth: Policy Choices in a Volatile World*. World Bank Policy Research Report. New York: Oxford University Press.

World Bank, WB (2006a) *Cambodia: Halving Poverty by 2015, Poverty Assessment 2006*. Phnom Penh: The World Bank, East Asia and the Pacific Region. http://web.worldbank.org/external/default/main?pagePK=51187349&piPK=51189435&theSitePK=293856&menuPK=64187510&searchMenuPK=293884&theSitePK=293856&entityID=000012009_20060222102151&searchMenuPK=293884&theSitePK=293856

World Bank, WB (2006b) *Managing Risk and Vulnerability in Cambodia*: *An Assessment and Strategy for Social Protection.* Washington D.C.: The World Bank. http://siteresources.worldbank.org/INTEAPREGTOPLABSOCPRO/Resources/KHSPSNfinal.pdf.

World Bank, WB (2007) *East Asia Update. April 2007.* http://siteresources.worldbank.org/INTEAPHALFYEARLYUPDATE/Resources/550192-1175629375615/KH-EAP-Update-April2007.pdf

World Bank, WB (2008) World Development Indicators for Cambodia. http://devdata.worldbank.org/external/CPProfile.asp?PTYPE=CP&CCODE=KHM and http://siteresources.worldbank.org/DATASTATISTICS/Resources/GNIPC.pdf.

World Bank, WB, World Development Reports 2000, 2001, 2002. http://econ.worldbank.org/wdr

Wright Graham A.N. (1999) *A Critical Review of Savings Services in Africa and Elsewhere UNDP/DFID Initiative: MicroSave-Africa.* http://www.undp.org/sum/MicroSave/ftp_downloads/wright.pdf

Wright, Graham A.N. (2000) *Principles and Practice: Myths of Regulation and Supervision Essays for the MicroSave-Africa project*. http://www.microsave-africa.com/documents/MicroSave-Africa Studies/Essays/Principles_and_Practice-Myths_of_Regulation_and_Supervision.doc

Xinhua (2007) "Donor countries pledge 689 mln USD in aid for Cambodia in 2007" Local media reported on Friday 13 July.

Yaron Jacob (1992) Successful Rural Finance Institutions. *World Bank Discussion Paper* 150. Washington DC: World Bank.

Yaron, Jacob and McDonald Benjamin (1997) *Developing Rural Financial Markets Finance and Development* based on Yaron Jacob, McDonald Benjamin, and Gerda L. Piprek (1997) Rural Finance: Issues, Design, and Best Practices. No. 14 *World Bank's Environmentally and Socially Sustainable Development Studies and Monograph Series*. Washington D.C.: World Bank.

Yaron, Jacob and McDonald Benjamin (2002) Recent Developments in Rural Finance Markets, pp. 321-340 in Zeller and Meyer (eds.) *The Triangle of Microfinance: Financial Sustainability, Outreach, and Impact*. Baltimore, Maryland: The Johns Hopkins University Press/IFPRI.

Zeller, Manfred (2003) Models of Rural Financial Institutions. Institute of Rural Development, University of Göttingen. (Forthcoming). Available as paper for Paving the Way Forward for Rural Finance. An International Conference on Best Practice, Washington DC, 2-4 June. http://www.basis.wisc.edu/rfc/documents/theme_models.pdf

Zeller, Manfred (2004) *Review of Poverty Assessment Tools Accelerated Microenterprise Advancement Project (AMAP)* Report submitted to IRIS and USAID as part of the: Accelerated Microenterprise Advancement Project (AMAP) - Developing Poverty Assessment Tools Project. http://www.povertytools.org/Project_Documents/Review%20of%20Poverty%20Assessment%20Tools.pdf

Zeller, Manfred and Julia Johannsen (2006) Is There a Difference in Poverty Outreach by Type of Microfinance Institution? The Case of Peru and Bangladesh. Invited panel paper for the Global Conference on *Access to Finance: Building Inclusive Financial Systems,* organized as part of the annual conference series of The World Bank and the Brookings Institution in Washington, D.C., May 30/ 31.

Zeller, Manfred and Manohar Sharma (1998) *Rural Finance and Poverty Alleviation*. Food Policy Report (ed.) Washington, DC: International Food Policy Research Institute, IFPRI. http://www.ifpri.cgiar.org/pubs/fpr/fpr25.pdf

Zeller, Manfred and Manohar Sharma (2002) Access to and Demand for Financial Services by the Rural Poor: A Multicountry Analysis, pp. 19-45 in Zeller and Meyer (eds.) *The Triangle of Microfinance: Financial Sustainability, Outreach, and Impact*. Baltimore, Maryland: The Johns Hopkins University Press/IFPRI.

Zeller, Manfred and Richard L. Meyer (eds.) (2002) *The Triangle of Microfinance: Financial Sustainability, Outreach, and Impact*. Baltimore, Maryland: The Johns Hopkins University Press/IFPRI.

Zeller, Manfred and Richard Meyer (2002) Improving the Performance of Microfinance: Financial Sustainability, Outreach and Impact, pp. 1-15 in Zeller and Meyer (eds.) *The Triangle of*

Microfinance: Financial Sustainability, Outreach, and Impact. Baltimore, Maryland: The Johns Hopkins University Press/IFPRI.

Zeller, Manfred, Cécile Lapenu and Martin Greeley (2003) Measuring Social Performance of Micro-finance Institutions: A Proposal Social Performance Indicators Initiative *(SPI) Final Report.* Argidius Foundation and Consultative Group to Assist the Poor (CGAP).

Zeller, Manfred; G. Schieder; Joachim von Braun; and F. Heidhues (1997) Rural Finance for Food Security for the Poor. *Food Policy Review No. 4*. Washington, DC: International Food Policy Research Institute, IFPRI.

Zeller, Manfred; Manohar Sharma; Carla J. Henry; and Cécile Lapenu (2006) An Operational Method to Assess the Poverty Outreach Performance of Development Policies and Projects: Results of Case Studies in Africa, Asia and Latin America. *World Development*, 34 (3): 446-464.